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# SOLDIERS AND THEIR SCIENCE.

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BY

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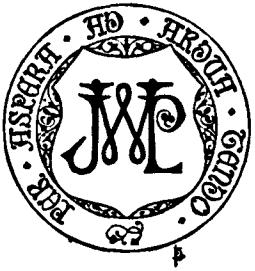


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# SOLDIERS AND THEIR SCIENCE.

## INTRODUCTION.

THROUGHOUT this little sketch of Military Science, I have endeavoured to avoid falling, on the one hand, into a dry, chronological recital of battles and sieges; on the other, into a mere compilation of maxims and aphorisms, useful only to those who know when to neglect them.

We are often told how valueless is a general rule. Napoleon has said, that nothing is absolute in war. Accordingly, in that elaborate network of theories, with which certain writers pretend to entangle and cramp all military operations, I can find but few—very few—which have not been constantly, nay, systematically disregarded by the greatest of ancient and modern commanders.

Of these rare and favoured exceptions, is that maxim which recommends the concentration of superior forces upon a decisive point—a most desirable object, which all generals, from Epaminondas at Leuctra to Louis Napoleon at Magenta and Solferino, have sought with varied success to attain. The chief difficulty of this, as of every other maxim, lies in its application, which is constantly opposed by the impossibility, on the one hand, of subsisting large forces

in a restricted and often impoverished territory, on the other of deploying, and fully developing a very numerous body on a narrow front. The first cause prevented any powerful combination of the French Marshals against Wellington, in Spain; and the second rendered the extreme concentration of Russian troops at Inkerman, a source of weakness rather than of strength.

If we are thus obliged to qualify one simple and widely acknowledged military maxim, how shall we treat those of more doubtful origin and authority, which decked out in such conventional jargon as manœuvring bases, definitive tactical lines and objective triangles, form the delight of those dogmatists, who would reduce warfare to an exact science,* and measure the conceptions of genius with a foot-rule?

As to the value of such aids our two great historians are singularly agreed. Macaulay says, 'One might be inclined to suspect that the military art is no very profound mystery—that its principles are the principles of plain good sense—and that a quick eye, a cool head and a stout heart, will do more to make a general than all the diagrams of Jomini.'

* Jomini says—'The idea of reducing the system of war to a theory simple and *exact* offers immense advantages. It renders instruction easy, and the judgment of operations *always just*.' Here, at least, are pretensions clearly expressed; so clearly indeed, as to nullify a subsequent disclaimer of this ambitious design. But these pretensions are confirmed by the whole tenor of Jomini's works. Where but in the fixed rules of an exact science could he find support for those judgments which he so complacently passes on Frederic and Napoleon, and which, at least in the opinion of the latter, are very rarely *just*.

While Gibbon thus expresses himself—'The use, or at least the importance of these military rudiments, may be fairly questioned. . . . and the battles won by lessons of tactics may be numbered with the epic poems created by the rules of criticism.'

In the same spirit speaks Napoleon: 'Generals are guided by their experience or genius. Tactics,* evolutions, the sciences of engineering and gunnery, may be learned in treatises like geometry; but the knowledge of the higher parts of war is only to be acquired by experience and by studying the wars and battles of great leaders. Can we learn from the grammar how to compose a book of the Iliad, or a tragedy of Corneille?'

But if war is, as Napoleon tells us, to a certain extent methodical, yet incapable of being taught by arbitrary rules, in what spirit are we to approach the campaigns of those great men, whom he constantly recommends to our study? The answer is supplied by one of their number: Frederic says, in words which cannot be too carefully weighed by every military critic, 'My method must not be set up as a model: the imperious law of necessity often forced me to leave much to chance. The conduct of a pilot who is influenced rather by the varying winds than by the indications of the compass, can never serve as a rule.' Here, then, we have the natural limits of theory clearly, although figuratively, defined. Theory

* This jars strangely with Jomini's assertion, that 'Tactics is the only part of war which cannot be reduced to fixed rules;' and, indeed, it shatters the whole of that elaborate theory which he so modestly designates as 'simple and *exact*.'

may form the base of an imaginary system, elaborated with all the precision of rule and compass; but it can never teach us how to weather those storms of which actual warfare is one uninterrupted succession.

But even if this union of high authority did not silence the pretensions of those, who claim to be at once the originators and sole dispensers of a science, which Napoleon has emphatically declared cannot be taught in books, would not these pretensions equally fall to the ground from their inherent weakness, and the want of concord among their professors? If war is to be taught on the same principles as geometry, let us at least have geometrical clearness and precision. Where every military operation is referred to definitions, is it unreasonable to ask that those definitions should themselves be simple and exact? Where certain fixed orders of battle are recommended for certain circumstances, have we not a right to demand that no ambiguity should obscure either the number or nature of these different orders? And yet are even these modest conditions fulfilled? Let one of the latest, and certainly not least intelligent, writers* of the school speak for himself. 'Vegetius recognised seven different orders of battle; General Jomini distinguishes twelve; perhaps another might discover a still greater number. For myself, who seek simplicity, I only admit of two, independent of the parallel order which only exists on paper.' Admirable candour!—but scattering to the winds a science which, like the last-named order, also exists

* Rocquancourt, one of the most accurate and conscientious of military historians.

only upon paper. Leaving then this question of number in hopeless and inextricable confusion, let us turn to one particular order—the oblique, on which this school have lavished all the elaborate resources of their art—and with what result? After vainly endeavouring to reconcile countless definitions equally complicated and obscure, the same authority is forced to take refuge in one, at least sufficiently ample and comprehensive. 'The term oblique order must serve to designate any manner whatever in which moral power is manifested in battles.' Lucid definition!—admirable science!

Is it necessary to follow such principles in their application to events?—the campaign of a general, no matter how illustrious, is seized upon. The scene of his operations is overspread with geometrical figures and diagrams duly lettered from *a*, *b* to *x*, *y*. A particular line is obtained which the general ought obviously to have followed: yet, sad fatality! he neglected it for another. The course he pursued may have afforded the advantage of good roads, of water-carriage for his siege-trains, of abundant pastures for his horses, and provisions for his men; it may have secured the precarious allegiance of a newly acquired province, or sustained the failing courage of a doubtful ally. While on the other hand the proposed line, though determined with geometrical accuracy, may labour under the trifling drawback of leading over rugged mountains, into a desert region where no army could subsist. But what matter? nature must yield to art: so also must mercy yield to justice. The arraigned general may perchance have scattered to the winds the tenfold forces of his enemies. He

may have filled all Europe with his hardly won renown. Those are extenuating circumstances; but nevertheless the dread sentence must go forth—'That general was entirely ignorant of strategy!'

The absurd pretensions of this then rising school did not escape the keen, practical glance of Napoleon, who however was little inclined to follow them in their dissertations. He thus casually exposes their dogmatic treatment of the oblique order. 'But what is this oblique order? Its advocates vary in their accounts of it. Some of them say that all the manœuvres made by an army, either on the eve or on the day of battle, to reinforce its line on its right, its centre, or its left, or even to get into the rear of the enemy, belong to the oblique order. In that case Cyrus manœuvred in the oblique order at Thymbria, and the Belgian Gauls at the battle of the Sambre against Cæsar. . . . There was hardly ever a battle, ancient or modern, in which the general who attacked did not reinforce his columns, either by numbers, by picked troops, or by a great quantity of cannon. . . . Others require that this manœuvre should be concealed from the enemy. It is a strange delusion to confound a surprise* with a systematic order of manœuvres. No doubt, it is a very fine thing to surprise one's enemy; but why stop at turning a wing? why not take the army in rear, seize their parks, their cannon limbered up, their ammunition, and the piles of muskets within their camp?' And again, 'To dogmatize on

* 'Such will be the infallible results of an attack in oblique order, when the enemy's flank has been turned without *his perceiving it*, according to the *method* I have shown!'—JOMINI.

questions of high tactics is the work of ignorance. It is like trying to resolve by the simple formulas of geometry problems of transcendent philosophy, at which Lagrange or Laplace would turn pale.'

But why accumulate proofs against a system which happily must eventually fall, by the sheer, unsupported weight of its errors and presumption. I say happily, because I can conceive nothing more fatal to military discipline, conduct, and true science, than the spread of theories, professing in a few compendious pages to teach the great secrets of war. Fortified with such pernicious doctrines, imagine the self-satisfied stripling, book in hand, under Hannibal, shaking his head at the rashness of abandoning a base of operations; serving with Marlborough and Eugene, denouncing them for exposing their flanks and communications, during the brilliant marches on the Danube and the Po; or in our own time holding up the Emperor of the French to the scorn of his troops, for fighting at Magenta with a great river in his rear. Imagine in every camp, groups of critics sitting in arbitrary judgment on their chief, and condemning him by the light of their precious rules and diagrams; and then where should we seek that cheerful obedience, that blind devotion, which has enabled great generals to accomplish things far beyond the ken of mere paper strategists and manœuvre-mongers?

The reign of speculative doctrines and precise rules in warfare will pass away, because it is in the nature of error to succumb to truth. But it must be confessed that, at present, they exert an influence over true science scarcely less baneful than when they were thus amusingly illustrated in the revolutionary wars. During

the Italian Campaign of 1796, Napoleon, strolling by night among the bivouacs, chanced to fall upon a batch of prisoners, amongst whom was an old Hungarian officer, extremely talkative, and easily enticed into conversation. In reply to some questions of Napoleon, whom he did not recognise, he said, 'that things were certainly going badly with the Austrians. But,' added he, 'is it to be wondered at? No one can understand what is doing. We are opposed by a young general, who at one moment is before us, at another in rear, and again upon our flanks. It is impossible to know how to place one's self. This style of warfare is insufferable—it violates all rules and usages.'

Curiously enough this innocent critique is echoed to the letter by Jomini, who strives laboriously to prove how Napoleon, by crossing the Po at Piacenza, violated the rules and usages which prescribed Cremona as the proper spot. How he directed his columns in defiance of the most venerated maxims, and comported himself in utter forgetfulness alike of system and of precedent. Feeble carpings, swept to the winds by a few words from the great culprit himself;* but which, if ever they fell into the hands of

* An extract from Napoleon's reply to such criticisms will suffice to show their value. 'Ought the army of Italy, instead of crossing the Po at Piacenza, to have effected its passage at Cremona? In moving from Tortona to Piacenza, down the right bank of the Po, it left its flank exposed (during a march of eighteen leagues) to the enemy, who, furnished with pontoons, was posted on the left bank. Many inconveniences would have resulted from prolonging this march for seven leagues more; and what end would have been attained by it? Piacenza, on the right bank, afforded

the veteran Hungarian, must have filled him with the liveliest sympathy and satisfaction.

Having thus sufficiently exposed the weakness and fallacies of a system, which some would establish not only as an arbitrary test for the past, but the source in which we are to seek revelations of the future, I will quit this part of my subject, repeating the advice of Napoleon, 'Read and read again the history, the letters, the despatches,* of great commanders; from their campaigns flow spontaneously the principles of military art. . . . The theory is not the practice of war.' Doubtless, Alexander and Frederic acted as Homer and Milton may be said to have written—on principles; but to whom is it given to reduce sublime principles to strict and narrow rules? It is as easy and as profitable to bid the young soldier surprise the enemy, turn his flank, cut off his communications, as to tell the aspiring rhymster, 'Here you must be pathetic; here terrible; here grand.' Yes, in the words of General Foy, 'The genius of destruction has also its sublime revelations, and awakens a power of

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all the resources of a great town to facilitate the construction of bridges. Cremona, on the opposite side, would have remained in the power of the enemy until the passage had been effected. Besides, Piacenza is the nearest point on the Po to Milan, whence Cremona is much more distant, and is separated by the Adda. If Beaulieu had crossed to the right bank of the Adda, and thrown a bridge across, opposite Piacenza, the French army would have been divided into two parts on the two banks. Flank marches are to be avoided, and when they are inevitable, they ought to be made as short, and with as much rapidity as possible.'

* 'More of the real and practical art of war will be found in the Duke of Wellington's despatches than in all the theoretical works of the German tacticians and strategists.'—Lord de Ros.

thought not inferior to that which presides over the creations of poetry and philosophy.'

Yet like poetry, warfare is to a certain extent an imitative art. The student, if he cannot seize the fire, the inspiration of a great model, may at least hope to acquire some knowledge of his method and style. Aided by experience he may, in due time, become skilled in manœuvres and all the minor operations of war. But without the rare gift of original genius, he can never clear that gulf which divides the general from the tactician—the poet from the rhymster—the artist from the artisan.

Deeply impressed by these convictions, I have endeavoured to show rather what great leaders have accomplished, than what they are charged by captious critics with leaving undone. Including under the designation of military science, all that contributes to the success and wellbeing of armies, I have not limited myself to a description of battles, marches, and manœuvres. I have examined various systems of raising, organizing, and subsisting troops. I have touched, lightly it is true, on their armament and equipment, their camps and fortifications; and thus I have endeavoured to present a series of rough sketches, which may enable the reader, not indeed to reproduce, in all their exactness, the details of a particular system, but to comprehend its spirit, and to catch its more salient features and peculiarities.

Regarding the execution of my task, I have little to say. I do not wish to magnify difficulties, probably shared by all who have endeavoured to reduce within a narrow scope the events of many centuries, and the conflicting opinions of many men. When,

for the matter of a single page, volume after volume must be examined and compared, it becomes impossible to insert those foot-notes of reference which form so valuable a part of larger works. This defect I have endeavoured to supply by occasionally citing in the text those authorities to whom I am most indebted. But in order not to disavow any of my obligations, I will here freely confess that I have, without scruple, availed myself of all reliable materials and documents which have fallen into my hands.

In setting in their due relief the characters and achievements of different generals, I have, however, often been compelled to forsake, perhaps, too partial guides. Here, that military literature, in which France is so rich, enlightens only to deceive. I can appreciate that intense national vanity which teaches, and perchance believes, that Turenne and Luxembourg were superior to Marlborough and Gonsalvo; or, better still, which can altogether ignore the existence of the English and Spanish heroes; which in fine, improving on that dictum of Louis, 'La France, c'est moi!' would announce to Europe, humbled and rebuked, 'La guerre, c'est nous!' But does history support these pretensions? Need we look back to the middle ages, or will more recent events suffice to prove that other nations have also their fields of fame; that a monopoly of declamation is not always a monopoly of glory; and that since our neighbours first began to parade along their coasts titular 'Armies of England,' the road to Paris has become more or less familiar to English armies.

These pages go forth at a moment when military

affairs absorb no ordinary degree of attention. A campaign, undertaken for an idea, has borne most ideal fruits. The quiet, unobtrusive arming of our volunteers offers a noble and significant spectacle. The arsenals of Europe ring with the preparation of new and undeveloped agents of destruction. Vast changes are impending. Happy that nation, which neither methodically cramped, nor carried away by speculative theories, shall seize their true spirit, and extract from them the fullest measure of practical value.

# CHAPTER I.

Origin of Military Science—The Jews—The Egyptians—Battle of the Four Kings against Five—The Greeks—Epaminondas—Leuctra and Mantinea, instances of the oblique order—Philip and Alexander increase the proportion of cavalry and light troops—Alexander's Conquests—Pyrrhus—First Triumph of the Phalanx over the Legion—Xanthippus, at the head of a Carthaginian army, defeats Regulus at Tunis—Hamilcar, his manœuvring marches—Hannibal crosses the Alps, and invades Italy—Cannæ—March of Nero to the Metaurus—Zama—Changes effected by Marius—Demoralizing effects of the Civil Wars—Cæsar, the universality of his genius—He restores the reserve to the Legion—His system of mixing bodies of horse and foot—Roman discipline and administration—Ancient Fortification and Enginery—Great length of Sieges—Military degeneracy of the Romans under the Emperors—The Prætorian Guards—their corruption—Difficulty of obtaining recruits—Fall of the Western Empire.

IN every age—in every state of society, nations have had recourse to war, either as a necessity or a pursuit. Everywhere the strong have sought to impose a yoke upon the weak—everywhere the weak have striven, by superior discipline and skill, to supply the place of numbers. Hence the origin of Military Science, of which it is the prime object to enable a lesser force to prevail over one more numerous.

The Jews were essentially a warlike people. With them few were exempt from military service, and among these few were the fearful and faint-hearted.

To such an one it was said, 'Let him go and return unto his house, lest his brethren's heart faint as well as his heart.' Unfortunately we know less of their tactics than of their military law, perhaps the bloodiest ever reduced to a system. They usually fought in bands of a hundred. The sword, the spear, and the bow were their favorite weapons. Chariots and horses they held in slight esteem, and their formation, loose and pliant, was adapted to rapid movements in a rugged and mountainous country.

In all these things they contrasted strangely with the Egyptians, whose plains favored the action of cavalry—who set great store upon chariots, and whose infantry, composed chiefly of heavy spearmen, was massed together in bodies of immense depth. Thus early were foreshadowed the rival orders of the legion and the phalanx; not destined, however, to reach perfection till more than sixteen centuries after the first battle recorded in sacred history.

This engagement was fought in the Vale of Siddim, about nineteen hundred years before Christ, and is known as the battle of the four kings against five. It ended in the defeat of the latter, who, having unskilfully chosen a position in front of some slime-pits, expiated this, the first recorded strategic error, by being overwhelmed in their retreat. But although the battles and sieges detailed in Scripture must ever excite our interest, they betray only a slight knowledge of military science, which the Greeks, founding their system on that of the Egyptians, were the first to cultivate with success.

The early Greek colonists were constantly in arms to maintain their independence. They compensated

for their poverty and scanty numbers by a system of discipline at once simple and severe—a system which was not relaxed as the field of their operations became more extended; and when a common danger united all Greece in a common measure of defence, we find the various contingents symmetrically ranged under one chief, and acting with a unity of purpose which could not have been surpassed in the single army of an individual state.

For many centuries the Greeks were distinguished by their regular formation, their discipline and their valor; by these, rather than by the talents of their commanders,* they established their superiority over surrounding nations. It was reserved for Epaminondas to discover and apply that great principle of war, which, independent of the nature of the troops and arms employed, will for ever form the basis of good military combinations.

This principle, susceptible of infinite variety in application, is yet in itself extremely simple. It has for its chief aim the concentration of an overwhelming force on a decisive point. In order to effect this, Epaminondas, instead of leading his army, as was usual, with its front parallel to that of the enemy, reinforced one flank at the expense of the remainder of his line. He then manœuvred, either by pivoting

* The slight esteem in which the Athenians at one time held their generals may be inferred from their custom of transferring the chief command to each of ten officers by daily rotation. In allusion to this custom, the fruit of early, and the germ of later mediocrity, Philip of Macedon observed—'The Athenians were fortunate to possess ten men capable of commanding an army, since he had the greatest difficulty in finding one.'

round his weakened flank, or advancing directly from his strong one; so that the latter alone engaged the enemy, which it overcame by the force of superior numbers at the point of contact. The remainder of the attacking army, hitherto withheld in an oblique* direction, now advanced to complete an easy triumph over troops whose line was already broken, and whose position was completely turned. Such were the dispositions by which Epaminondas, with inferior forces, gained the decisive victories of Leuctra and Mantinea —victories which secured for his country a temporary supremacy in Greece, for himself an enduring fame. Dying childless on the field of battle, he exclaimed that Leuctra and Mantinea were his children, and that he left them as a legacy to his country. They were a noble bequest; history has recorded no victories more entirely due to the surpassing genius of one great man.

The examples of Epaminondas were not lost to his successors. He was the founder of an illustrious school of generals who maintained the glory of the Greek arms, even when that of Greece herself was obscured and passing away; and who, by imparting to the Carthaginians the fruits of their knowledge and experience, raised up a rival power which for more

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* Hence the name of oblique order, which, applied to this method of attack, gives but an imperfect idea of its advantages. These consist in bringing to bear a superior force on the decisive point, which may even be effected without an oblique direction being assumed by the attacking army. Indeed, it is obvious, that as the obliquity of two lines must be reciprocal, any advantage, derived from it alone, would be neutralized by being common to both.

than a century disputed the military supremacy of Rome.

The Greeks had naturally adapted the organization of their armies to the warfare in which they were chiefly engaged. To secure their independence was at once the aim of each individual state and of the confederation itself. Their strength was first put forth to resist an invader immeasurably superior in numbers, and bringing a vast array of cavalry into the field. To maintain a defensive attitude in chosen positions was clearly their policy; and having only short spaces to traverse, they sacrificed every other consideration to the stability of their forces. These consisted almost entirely of heavy infantry, whose formation into a deep and compact phalanx,* possessed great powers of resistance, but lacked the pliancy and mobility, which are so essential to the success of an invading army.

A formation so cumbrous and unwieldy suited neither the ambitious views of Philip nor the vaster projects of his son; and accordingly both these monarchs effected many changes in the composition of their armies. Still placing their chief reliance on the heavy infantry, which the Greeks had always re-

* Some writers would narrow the meaning of the word phalanx, by applying it only to infantry when thrown into a particular mould—as the wedge, the cross, or the still more impracticable circle. But, although the experimental genius of the Greeks may have betrayed them into these vicious formations, they were purely exceptional. The term phalanx is more correctly applied to the main body of heavy infantry, irrespective of the order in which it was drawn up. This, however, was generally an oblong, of which the fractions resembled modern battalions in close column of companies.

cognised as the arm of battles, they greatly increased the number of light troops, and subjected them to a more regular discipline. Alexander raised the proportion of cavalry, which before his time had rarely exceeded an eleventh, to one-seventh part of the whole force. He was thus able to meet and ward off the harassing attacks of the Asiatic horsemen, and to preserve inunimpaired vigour the massive, inflexible phalanx for its true sphere of action—the shock of a regular engagement.

The career of Alexander in the East gave a strong impulse to military science. If Epaminondas had developed the first principles of tactics and field operations, there yet remained the wider domain of strategy and military policy for Alexander to seize upon and make his own. We may admire the skilful disposition of his troops and the ardour with which he led them in battle; but we stand amazed at conceptions so vast and stupendous, that had they miscarried at any one point, their projector would have been stigmatized as an enthusiast and a madman.

But although the self-reliance of Alexander sometimes verged upon rashness, his was the rashness of calculation and design. No general ever left less to chance, or relied more upon moral effect. Having once resolved upon the conquest of Persia, no advantage however tempting, no triumph however brilliant, could make him swerve from his path. In the year 334 B.C., being then twenty-one years of age, he crossed the Hellespont at the head of 30,000 infantry and 5000 cavalry, a force which gradually swelled in numbers while it improved in discipline. He turned

the line of defence which Memnon had prepared along the Ægean coast, by a bold march to the eastward, along the shore of the Sea of Marmora. In his tactics he carried out the principles of Epaminondas by massing superior forces on the decisive point. Rapid in his marches and impetuous in battle, he could wait and wait until seven months of tedious and apparently hopeless labour had reduced the stronghold of Tyre, and gained for his army a secure base of operations: nor would he advance against the Persians, twice defeated on the Granicus and the Issus, until he had established his authority along the whole coast, from the Black Sea to Alexandria, and thus cut off the enemy from all communication with the malcontents in Greece.

Into every detail, however minute or insignificant, Alexander infused order and simplicity. Although the configuration of the ground did not exercise in ancient warfare that influence which it has acquired since the invention of firearms, he established a special body of engineers and draughtsmen, who by drawings and written reports, kept him informed respecting the country to be traversed, its resources and the dispositions of the enemy. His system of transport and supply was worked with admirable precision; and his troops were furnished with pontoon and battering trains by which the passage of rivers and the reduction of strongholds were greatly facilitated.

Such were the means by which Alexander triumphed over obstacles, and secured the success of his military operations; but these again were guided by, and made subservient to, an enlarged and far-seeing policy.

By craft and persuasion, he detached from the Persian King not only his doubtful allies and foreign mercenaries, but his very satraps and lieutenants. By the force of arms he subdued province after province, which he retained by conciliating their inhabitants, and attaching them to his rule. Thus he was able fearlessly to advance from his newly-acquired territory into upper India, at the head of a force three times as numerous as that with which he had conquered at the Granicus. He passed the Indus, near Attock, swept away the opposing armies, and already his projects extended beyond the Ganges, when a term was put to them—not by his flagging spirit or failing resources, but by the murmurs of his veterans, who, weary of making conquests, desired at length to enjoy them. Thus was checked a career which had, however, extended far enough to furnish an ample store of study to the statesman and the soldier. The one may analyze his military successes; the other that sagacious policy which endeared him to those whom his arms had subdued;* both must acknowledge that, great and rapid as were his conquests, they were everywhere attended by civilizing and beneficial results.

The death of Alexander was followed by the disruption of the vast empire, which his genius had united, but which his lifetime had been too short to consolidate. Greece was severed from the Eastern provinces, and once more had a separate existence; but straitened in her liberties, torn by internal dis-

* The recent trials to which our rule in India has been subjected, must indue with a more than ordinary interest Alexander's system of governing millions of Asiatics by a mere handful of Europeans.

sensions, and drained of her most adventurous spirits, she was rapidly declining from her pride of place, when a new project of foreign conquest, for awhile arrested her decay, and caused her once more to set forth her ancient strength.

Pyrrhus was indebted to his misfortunes for the education of a soldier. In contesting his throne, he acquired the experience of camps, and nourished that spirit of restless ambition for which he was pre-eminent, even among the random adventurers of his age. Baulked in his projects against Greece by the apathy of his countrymen, he had been for some time reduced to inaction, when the Tarentines sought his aid against the overbearing power of Rome. Gladly he accepted their proposal; while, from every side, volunteers flocked round the standard of invasion. To a people without liberty, plans of foreign conquest are more captivating than those of national security and defence.

The first care of Pyrrhus on landing in Italy was to infuse some degree of order into the ranks of his new allies. By enforcing a discipline severe as theirs had previously been lax, he formed a body of Tarentines which, although armed after the Roman fashion, he deemed worthy of being alligned in alternate bands with the veterans of his phalanx. His infantry being thus reinforced, and supported by a numerous cavalry and a division of elephants,* auxiliaries esteemed in Greece since the conquests of

* Elephants are now advantageously used in India as animated battering rams, overthrowing, by their weight, the thin walls, on which penetrating round shot have but little effect.

Alexander, Pyrrhus took the field; not, indeed, without making those hollow professions of peace and disinterestedness which, common in the mouths of all military adventurers, were estimated by the Romans at their just value.

The first view of the rival armies, as they drew up near Heraclea on opposite banks of the river Siris, must have raised the opinion which each of these great military nations had formed of their adversaries. Pyrrhus, accustomed to hear the Romans designated as barbarians, must have admired their martial appearance, their exact discipline and regular formation. He must also have observed—though perhaps he did not fully appreciate—that regulated system of supports and reserves, that completeness within itself, which rendered the organization of the legion the most perfect that had ever been devised for independent action.

The regular infantry of a legion was usually disposed in three parallel lines, the two foremost of which each contained 1200 men; while the third numbered only 600. Each line was composed of a distinct class of soldiers, and was divided into ten bands of ten ranks in depth. The soldiers were ranged alternately, like men upon a draught-board; and, being separated from one another by intervals of three feet, an ample scope was afforded for the free play of weapons; whilst, on an emergency, the two foremost ranks could unite into one unbroken line. Massive body-armour, a semi-cylindrical shield, and a brazen casque, the lofty plumes of which imparted, according to Polybius, a beautiful and terrible aspect, were, together with a short cut-and-thrust

sword, common to all the regular soldiers of the legion.

The first line was composed of the Hastati, the youngest and least distinguished in the ranks. They were armed with two javelins, the lighter of which was hurled at the first onset of the enemy, while the other was reserved as a defence against cavalry. To the Hastati was assigned the honorable duty of engaging the enemy in the full view of their more experienced comrades. If they were either repulsed or hardly pressed, they retreated behind the second line composed of Principes; and it was so contrived by the bands of those two lines being separated by distances equal to their fronts, and being like the individual soldiers ranged alternately, that a simple retreat of the one, or advance of the other, effected a passage and substitution of lines without disorder or delay.

The Principes, who now confronted the enemy, were armed in a similar manner to the Hastati; but were distinguished from them by their superior strength and prowess, qualities for which they had been especially selected. In the event of this formidable line failing, which it rarely did, to break the ranks, or repulse the attacks of the enemy, it slowly and in good order fell back upon the Triarians, soldiers rendered illustrious by distinguished services and honourable wounds—the grand reserve of the legion and the last hope of the army.

As this body was less numerous than either of the other two, so the columns into which it was divided were smaller. Resting upon one knee, completely covered by their shields, with upright spears, the

Triarians fronted the open spaces between the Principes, and there awaited the issue of the conflict. No sooner were they joined by their retreating comrades, than suddenly springing up, and rallying in their intervals* the remnants of the other ranks, these veterans threw themselves upon the enemy, dismayed at their sudden apparition, and expecting rather to pursue the vanquished than to contend against fresh troops.

Such was the formation of the legion, sufficiently formidable in itself, but ever supported by clouds of light troops, in which the younger and poorer citizens served a military apprenticeship. They were lightly clad, and armed with slender javelins, a sword and circular shield. Covering the fronts and flanks of the legion, as skirmishers, at the commencement, and plying missiles from its rear during the heat of the action, they were eager to signalize themselves in sight of their fellow-soldiers by deeds of individual daring; and thus to gain the dearest object of their ambition—the honor of serving in the ranks.

To the infantry of each legion was attached a

* From the fact of the three lines of the legion being occasionally united in one, it has been ingeniously argued, that the intervals between the columns of any one line must have been equal to the fronts of the *two* corresponding columns in the others. But although in the Roman exercises, those bloodless combats which so strictly represented the actual circumstances of war, no allowance may have been made for disabled soldiers, yet it is probable, that as this junction of the three lines only occurred at the moment of a critical shock, the legionaries, availing themselves of their elastic formation, instinctively closed in upon one another, and thus diminished the space occupied by each column in open order at the commencement of the action.

small force of cavalry, which, divided into ten troops of thirty-two horsemen, armed with sword, spear, and buckler, formed the worst part of the Roman army. There were also attached to the legion a proportion of warlike engines, a number of handmills drawn by mules, a commissariat train, and a body of explorers. So that, like the French revolutionary division, each legion was not only the fraction of an army, but was in itself an army in miniature.

Great, however, as were the advantages derived by the legion from its symmetry and completeness, it was far from presenting to the eye the formidable appearance of the Greek phalanx, which, dense, massive, and seemingly impenetrable, confronted it on the plains of Heraclea. As no two formations of regular infantry could differ more widely, so none could more fairly reflect the institutions to which they owed their origin.

The heavy infantry or Hoplites who, compactly ranged sixteen in depth, formed the principal strength of the phalanx, were covered with defensive armour; besides the sword they wielded a ponderous spear, of which the great length permitted six bristling points to pass beyond and protect the file-leaders, who were selected to form the front rank of the phalanx, either on account of superior courage or bodily strength.

All the divisions of the phalanx were based upon the number sixteen. An elementary phalanx consisted of 4096 heavy infantry, divided into solid squares of 256, and supported by a strong force of light infantry and cavalry. Its order of battle was one continuous line, as close as the breadth of the shields would permit. Even when four of these

divisions were united in the field to form a grand phalanx, the intervals by which they were separated only sufficed for the free circulation of officers. This disposition offering neither flanks to the cavalry, nor intervals to the chariots and elephants of the enemy, enabled the soldiers to devote all their energies to repulsing the attack in front, which they might either await in the consciousness of passive strength, or anticipate, at the last moment, by falling on the enemy with a might and power which few could hope to resist. The Roman general who struck the last blow at the military pre-eminence of Greece, has described the phalanx as presenting a wall of iron and forest of spears, which no enemy could attack or even behold without awe and misgiving: its veterans might perish, but their ranks remained unbroken; the phalanx was immoveable, even in its destruction.

It was this immobility which constituted the real strength of the phalanx. Once set in motion, those very peculiarities, which rendered it formidable in repose, became so many elements of weakness. The great depth of its combatants, the length of their spears, and the closeness of their array, impeded their progress, and created a disorder, which even their nicely-cadenced step, keeping time to the fife, could not prevent. Lending itself with difficulty to the irregularities of the ground, the phalanx could neither boldly advance to the attack, nor closely pursue the retreat of an enemy. Minutely subdivided in theory, it was practically weakened by these subdivisions, which could never bestow a pliancy denied by the very nature of its armament and formation. Hence,

when Greece, after centuries of resistance, assumed an offensive policy, the phalanx could only be retained by joining to it a preponderating force of cavalry and light infantry, without which it might achieve, but could never complete a victory.

It is not surprising, then, that the Romans, whose cavalry was always indifferent, should reject this formation for one less massive and powerful, indeed, but infinitely superior in all those field operations by which conquests are made and retained. Early imbued with the idea of universal dominion, they sought and obtained in the legionary order one formidable in battle, yet more dreaded from its rapid movements, the ease with which it penetrated the most difficult country, and lent itself to every nature of ground and variety of manœuvre; and, lastly, from that completeness within itself, which enabled it to gain battles and conquer provinces, with no other aid than what it derived from its own resources.

Advantages so great were not obtained without some sacrifices. It is to a certain extent true in tactics, as in mechanics, that what is gained in velocity is lost in power. Unlike the phalanx, the legion could not concentrate on one point an overwhelming force; its numerous flanks and open intervals invited the attacks of cavalry, and even elephants, which more than once proved fatal to a Roman army. Before these formidable assailants, the legion instinctively approached the order of the phalanx, the massive solidity of which, however, it could no more rival, than the columns of the ten thousand in their memorable retreat could acquire the activity of the legion. But such assimilations were purely excep-

tional. The phalanx and the legion remained essentially distinct; the one prevailed in campaigns, the other in the shock of battles.

The equal valor with which the two armies strove in their first engagement did full justice to their reputation; its issue remained undecided till the science of the general turned the balance in which the qualities of the soldiers were so fairly poised.

Pyrrhus, having drawn up his troops upon a gentle slope, awaited the Romans, who, crossing the stream which divided the two armies, advanced with an impetuous confidence, the fruit of a long course of victories. But neither the first vigour of their attack, nor the obstinacy with which they renewed it, could shake the firm array of their opponents, before which they recoiled as often as they returned to the charge.

Dispirited by their want of success, the Roman ranks already betrayed symptoms of disorder, when Pyrrhus brought up his reserves of cavalry and elephants to complete a victory which the firmness of his infantry had achieved. At the sight of this imposing mass, the disciplined bands of the Romans melted into a disorganized throng, and fled precipitately towards the stream, when, impeded in their flight, trampled down by the elephants, and slaughtered by the Thessalian horse, whole legions were annihilated; and when at length Pyrrhus desisted from pursuit, nothing worthy of the name of army remained to oppose his march on Rome.

The decisive victory of Heraclea was not achieved without great losses on the part of the Greeks; which they felt the more keenly because they expected no

reinforcements from their own country, and yet were unwilling to increase the proportion of Tarentines in their army. Hence Pyrrhus was desirous rather to obtain some concessions, which might honourably terminate the war, than to risk a battle under the walls of Rome. These hopes were disappointed by the fortitude of the Romans, who, offering to the conqueror the terms usually imposed on the vanquished, left him no alternative but to continue a contest in which the nature of his resources gave little promise of ultimate success.

From this period the position of Pyrrhus in Italy became daily less secure. Surrounded by allies whom he mistrusted, and opposed by an enemy whom no reverses could subdue, he found his army dissolving in the midst of victory; whilst, on the one hand, every advance removed him further from his supplies, and, on the other, hesitation or retreat were equally fatal to his cause. At length, after a desultory war of five years, in the course of which the struggle was transferred to Sicily, he finally withdrew from Italy, leaving behind him the greater part of his forces, and many examples of military science, which the Romans did not fail to appreciate and improve. In this war they first learnt the importance of cavalry, the method of opposing elephants, and the art of choosing positions and fortifying camps, in which latter respects they were not slow in outstripping their original instructors.

From the retreat of Pyrrhus out of Italy dates that gradual preponderance of Roman power in Greece, which first deprived her of all save the shadow of independence, and finally reduced her to a province.

Already had she reached that stage of decay in which the feeblest efforts exhaust, when the rapid rise of Carthage for awhile arrested her fall, and even overshadowed the military greatness of Rome.

Although essentially a maritime nation, the Carthaginians had acquired some military experience in their numerous struggles with the Syracusans; but as their levies consisted chiefly of foreign mercenaries bound by no tie to the state, and disbanded at each conclusion of peace, they had at their command no force, fitted either by the skill of its leaders or the discipline of its soldiers to cope with the veterans of Rome. So great indeed was the superiority of these, that in a few years they had not only defeated the Carthaginians in Sicily; but creating a navy, and wresting from them the command of the sea, they had carried the war into Africa almost to the very gates of their capital.

Dismayed at the rapidity and magnitude of these disasters, the Carthaginians were prepared to accept peace, even on the harshest terms, when their courage was raised by the arrival of a Greek reinforcement, which included in its numbers Xanthippus, a Spartan general of some reputation. This officer, well versed in the tactics of Pyrrhus and Epaminondas, ascribed the constant reverses of the Carthaginians to the incapacity of their chiefs; and so convincing was his argument, that they intrusted to his command the army which they had collected to make a last effort for their independence.

Xanthippus, having first accustomed his troops to regular discipline and manœuvres, determined to give

battle in the plains, where the action of his numerous cavalry and elephants would be free and unfettered. Here, having drawn up his army with the heavy infantry in the centre, he awaited the approach of Regulus, the Roman general, who, elated by former successes, did not hesitate to accept battle even on the least advantageous terms.

The action was commenced by the Carthaginian horse, which, easily overturning the squadrons of Regulus, enveloped the flanks and rear of his army; whilst he, on the other hand, had driven from the field the light infantry of the Carthaginian right: so that success seemed fairly balanced, when the elephants advanced, and charged the main body of the Roman army. Regulus, who was familiar with the use of these animals, had prepared for their reception by massing his infantry in deep columns separated by lanes, through which he intended that the elephants should be driven by some light troops, which he had drawn in a thin line across the openings so as to mask them from the enemy. Whether these openings were too narrow, or had been disordered by the cavalry charges, it is certain that they did not attain their object. The elephants, on being chased into them, found themselves surrounded on all sides, and in attempting to emerge, trampled down whole masses of the legionaries. Those who escaped this fate were charged in front by the phalanx of Xanthippus, in flank and rear by his victorious cavalry. Regulus was taken prisoner, and of the splendid force which had engaged under his command, a shattered remnant of 2000 alone escaped to the mountains.

This battle takes its name from Tunis, in the neigh-

bourhood of which it was fought. Of all the victories recorded in history there are few which throw into higher relief the influence of individual genius in war. Xanthippus had found an army of mercenaries which, animated by no patriotic feelings, and united by no common bonds, was broken in spirit and discipline by a succession of reverses. Into troops thus demoralized, he instilled that confidence in themselves and their commander, which is essential to military success. He led them forth against their former conquerors, who were commanded by a general of great ability and yet greater reputation; and by his skilful dispositions he not only gained a signal victory, but annihilated a great army; and thus at one blow reversed the positions of the two powers which had resulted from a long course of Roman triumphs.

Of the Carthaginian school, which was founded on the maxims and examples of the Greeks, Hamilcar was the first who attained any eminence. Displaying the qualities of a general in all situations, he particularly excelled in the science of marches, which he carried to such a degree of perfection, that at an interval of 2000 years Frederic, in some of his most brilliant manœuvres, may be said rather to have equalled than surpassed him.

Before Hamilcar reduced the principle of marches to a system, generals were often content, after selecting a point at which to meet the enemy, to advance towards it by the shortest route, and in an order of march which has been aptly termed processional, reserving their talent for the choice of a good position and the skilful occupation of it by their troops. Disdaining so conventional a method,

Hamilcar, in the proximity of the enemy broke up his army into several columns, thus increasing its mobility and assimilating its order of march to its order of battle. He then boldly advanced by manœuvring marches, in which his troops were so disposed as to be able to give battle in any direction, and on any point of the space they were traversing: while such were the rapidity and variety of his evolutions that they baffled, and disconcerted even those veterans who had formerly become inured to war under his command. At the head of an army, thus thoroughly manœuvring, Hamilcar took the field against the revolted mercenaries, who, under the command of Spendius, a fugitive slave, had reduced the Carthaginians to the lowest depths of misery and distress.

At this time the mutineers blockaded Carthage, by occupying the narrow isthmus which connects it with the main continent of Africa, and which is naturally fortified by a range of craggy hills, and by the Macar, a deep and rapid river, the only bridge over which had, together with the heights, been seized upon by Spendius.

Seeing the hopelessness of a direct attack on a superior army thus strongly posted, and yet knowing that the safety of Carthage was imperilled by its prolonged blockade, Hamilcar determined on a plan of operations which, baffling the precautions of Spendius, was crowned with rapid and signal success.

Like all great generals, Hamilcar studied most attentively the configuration and local peculiarities of the theatre of war. He was thus led to observe that, during the prevalence of a certain wind, the mouth of

the Macar became so choked with sand as to permit the easy passage of troops.

Founding his plans upon this ascertained fact, Hamilcar waited for the recurrence of the favourable wind, and then, leading his army across the river in the dead of night, he advanced rapidly along its southern bank against the force which defended the bridge.

Spendius was no sooner informed of this daring stroke than he hastened to oppose Hamilcar, who, knowing the rebel army to be much scattered, and dreading an attack in rear, had closed his columns of march with his heavy infantry, whilst he pushed on his elephants, cavalry, and light troops in front, in the hope of overwhelming the enemy in detail. But on the nearer approach of the two armies, he perceived that a powerful detachment, which might have molested his march, had foregone that opportunity in order to unite with Spendius; thus forming a combined force twice as numerous as the Carthaginians, and with which their light troops were quite unequal to contend.

Hamilcar, therefore, ordered his advanced guard to wheel outwards, and fall back on the heavy infantry in their rear. The mutineers, observing what appeared to be a retreat, hurried forward to prevent its execution, but were dismayed to find themselves confronted by the Carthaginan phalanx, which steadily advanced towards the ground abandoned by the cavalry and light troops, whilst these, having completed their retrograde movement, faced about, and covered the extremities of the line. Before this imposing array, the mutineers were driven and dispersed; they left

6000 slain on the field, and those who escaped spread far abroad the terror of Hamilcar, who, having thus, by one rapid and vigorous blow, broken the neck of the rebellion, soon afterwards brought it to an end.

He then extended his conquests in Africa and Spain, where he sought to gain an equivalent for Sardinia, of which Carthage had, in her hour of distress, been despoiled by Rome. Already was his avenging arm raised against this inveterate foe when death cut short his career. Great as was his loss to Carthage, she found it not irreparable; for, like Philip of Macedon, he left behind him a son, destined to carry out his projects and eclipse his fame.

Hannibal had inherited from his father a rare military capacity, and a deep hatred of the Roman people, which, in his childhood, he had confirmed by a solemn oath. Reared amidst the turmoil of camps, he early became experienced in the science, and inured to the dangers and vicissitudes of war. Raised to the command of the Carthaginian army in Spain, he first consolidated his power in the south of that Peninsula; and then in the year 219 B. C., being in his 28th year, he laid siege to Saguntum, a town under the protection of Rome, and thus entered on the Second Punic War, perhaps the most memorable ever waged between two great nations.

Conscious of the grave nature of the struggle he had provoked, Hannibal's first object was to carry the war into Italy, and thus to impose on his enemies the full weight of its destructive ravages. Therefore, while the Romans were amused by fruitless negociations, he, having overcome the desperate resistance

of Saguntum, and concluded treaties with the Gauls on both sides of the Alps, quitted his winter quarters at Carthagena in the spring of 218; and having passed the Ebro, and subdued the country to its north, rapidly led across the Pyrenees an army of 50,000 infantry, 9000 horse, and some elephants, and arrived on the western bank of the Rhone at the same time that Publius Scipio anchored off its eastern mouth, with a force which the Romans, in ignorance of Hannibal's designs, were sending to oppose him in Spain.

Scipio was not without hopes of disputing the passage of the Rhone, especially as the country people, being under the influence of Marcellus, were friendly to Rome: but in this he was disconcerted by the rapidity of Hannibal's movements. That general had determined to cross the river at a point about four marches from its mouth, but finding the opposite bank occupied by an army of hostile Gauls, he made a great demonstration of forcing the passage, whilst he sent a powerful detachment with instructions to cross the river higher up, and then, descending its eastern bank, to fall on the right flank of the Gauls.

This force, having reached the neighbourhood of the enemy, communicated with Hannibal by a preconcerted signal, and then setting fire to the camp of the Gauls, and charging their flank and rear, whilst Hannibal crossed the river and attacked their front, a murderous rout ensued; and Hannibal, completing the passage on the following day, turned his back upon the sea, and had already advanced three marches up the Rhone, when Scipio arrived at his deserted camp.

Thus foiled in his first design, Scipio pursued a course which has gained the approbation of all critics. Unable, from the hostility of the inhabitants, to cross the Alps on an inner line to that of Hannibal's march, he re-embarked his army, and, sending the greater part of it into Spain to cut off the Carthaginian reinforcements, he himself sailed back to Italy with a small force, and joined the Consul Manlius at Piacenza, there to await the irruption of Hannibal, who, having crossed the Isère, and obtained abundant supplies from his new friends, prepared to pass the Alps.

Of all the heroic deeds of ancient times, none is more calculated to fix our admiration than the passage of the Alps by Hannibal. In every age it has formed an inexhaustible topic for writers of every grade, most of whom, in the words of Polybius, whilst they extol not less the prudence than the courage of Hannibal, yet, by greatly magnifying the dangers he had to encounter, represent him as the most senseless and irrational of men.

But even that conscientious writer, Polybius,* with all his desire for truth, may have overestimated the difficulties of this passage, from the fact that, even up to his time, the Romans had never attempted it, but had preferred communicating with Gaul and Spain by sea, to a toilsome march through hostile and warlike tribes. How valuable, then, to us, are the few

* Polybius says that Scipio was astounded by Hannibal's passage of the Alps, which he believed to be impossible, and yet he inconsistently shows that the whole of Scipio's conduct was based on the probability of that event.

simple comments of Napoleon, whose competency to pass a judgment on this celebrated march none will dispute, and whose version, founded on the best ancient authorities, it is my intention to follow.

Before leaving Carthagena, Hannibal had received envoys from the Gauls who peopled the slopes of the Alps and the valley of the Po. These, the inveterate enemies of Rome, not only favoured his enterprise, but even pressed for its speedy execution. In the country between the Rhone and the Alps he also found powerful allies, who liberally supplied his wants, furnished him with guides, and even co-operated with him in arms. Thus the inhabitants of these districts, who formed a living barrier against Rome, facilitated the march of Hannibal; and although some amongst them may have molested his march in the hopes of plunder, they were, on the whole, eminently favorable to his cause.

The natural difficulties of the Alps were doubtless great, and, as regards the passage of elephants, almost insurmountable; but when it is urged that these difficulties had never been braved by a Roman army, we must remember that, for centuries before the time of Hannibal, the Gauls were in the constant habit of crossing the Alps,* and pouring into Italy, the northern part of which they had completely colonized; and only a short time previous to this passage a con-

* This fact rather lessens the value of some very pretty writing, such as 'Hannibal opening his way through eternal snows hitherto only visited by the eagle in his flight;' or 'as the first mariner buffeting the waves of the ocean, &c.'

siderable army had crossed the mountains to join the Cisalpine Gauls in their war against Rome.

The march of Hannibal from the Pyrenees to Turin was perfectly simple; it was that of a traveller —he took the shortest road. He kept his army united, he made no detachments, he left no garrisons, nor did he preserve any communications with Spain or Carthage, with which latter place he had no intercourse until after the battle of Lake Thrasymene. His march from Carthagena occupied a period of five months, the last fifteen days being spent in crossing the Cottian Alps; having accomplished which, he descended into the valley of the Po, there to recruit his exhausted and much-diminished army.

If Napoleon has stripped of its exaggerated features this celebrated march, does he, therefore, refuse tribute to the genius of Hannibal? No. Placing his invasion of Italy even beyond the conquests of Alexander, he pronounces it the most daring and comprehensive scheme ever executed by man. But it is not the actual passage of the Alps which excites his warmest admiration. Had that barrier never existed, the intrepid spirit of Hannibal would have shone almost as brightly in launching forth himself and his handful of mercenaries, beyond all hope of retreat in the event of disaster, on the territory of a warlike nation, the resources of which were estimated at 700,000 fighting men.

Hannibal having refreshed and reinforced his army among the friendly Cisalpine Gauls, stormed Turin, which had rejected his alliance, and then marched eastwards on the Ticino, where he first encountered

the Roman forces under Scipio. But having brought the two armies into contact, it is not my intention to follow Hannibal throughout his marvellous campaigns, or to analyze the means by which, receiving but scanty succour from Carthage, he maintained himself for fifteen years in the territory of Rome, defeating her armies, insulting her capital, and consuming her resources. Like Alexander, he kept his army united, and in hand, ready to strike vigorously on every side. He entrusted his communications to his allies, and always garrisoned one stronghold, which contained his sick, his hostages, and magazines. His marches were often made in defiance of all the arbitrary rules of war; for, knowing that, after their repeated defeats, the Romans feared to meet him in the field, and being, besides, far superior in cavalry, he was lord of the open country, through which he roamed at large, unfettered by precautions which might have cramped a less successful or a more methodical general.

The victories of Hannibal were generally decisive, and ended in the annihilation of the opposing army.

Although no general was ever more versatile, there are two chief causes to which his successes in the field may be attributed—his superiority in cavalry, and his talent for taking advantage of broken ground in order to favor surprises and ambuscades. At the Trebia both these causes combined to secure his victory. At Lake Thrasymene he placed his whole army in ambush, on the Roman line of march, thus laying a snare into which the incapable Flaminius*

* According to some recent works, Flaminius was endowed with many of the very highest qualities of a general; but Polybius, a competent and seldom a harsh judge, pronounces him utterly destitute of all the talents required in war.

was not slow to fall; but perhaps a brief sketch of his great victory at Cannæ will give the clearest idea of Hannibal's conduct in the field.

The army of Apulia was the greatest that Rome had ever concentrated on one point. It consisted of eight complete legions of 5000 Roman troops, each of which, according to custom, had attached to it about an equal number of allies. This force, commanded on alternate days by the consuls Emilius and Varro, nearly doubled that of Hannibal; but in this as in every other engagement in Italy, he was far superior in cavalry.

Wearied by the ravages of Hannibal, the Roman senate had resolved on fighting a decisive battle, and orders to that effect being issued, Varro, who commanded, crossed the river Ofanto,* and drew up his troops in battle array, their right flank resting on the river, and their faces being turned to the south.

Hannibal was not slow to accept the battle thus offered by the Romans. Crossing the river, he formed his army opposite to that of Varro, and, like him, placed his regular infantry in the centre, covering their front with his light troops, and their flanks with his numerous cavalry.

The battle being opened by some desultory skirmishing, the Gallic and Spanish horse of Hannibal's left advanced against the Roman cavalry in their front; and, after a desperate struggle, in which many of the combatants dismounted, in order to grapple

* Some writers are pleased to make Hannibal take the initiative in crossing the river and offering battle. But it would be difficult to justify such an assumption, unless historical facts are to be treated in the same fashion as the materials of melodrama.

more closely with the foe, they drove them, with heavy loss, along the river-side. Hannibal then led forward his Gallic and Spanish infantry, which, ranged in alternate bands, formed the centre of his line, so that it presented the appearance of a crescent, the convex side being turned towards the enemy. These troops, however, unable to make head against the legionaries, which had been reinforced by Varro, gradually yielded ground in their centre, until their line again approached the form of a crescent; but this time with its concave side turned to the pursuing Romans, and its extremities, composed of African veterans, overlapping their flanks, which they now assailed with great fury; while the victorious cavalry, returning from the pursuit, fell on the rear of the legions, which were thus encompassed on all sides at the moment of anticipated triumph. A fearful slaughter ensued, 70,000 of Varro's troops remained dead upon the field, and Hannibal found himself master of the whole country up to the very gates of Rome.

It is the opinion of most critics, and among them of the great Napoleon, that Hannibal should now have marched straight on Rome, and thus at one blow have decided the issue of the war. It is certain that he could scarcely hope for a more favorable opportunity, and his neglecting to seize it has given color to the saying, 'That he was greater in achieving success than in profiting by it.' Those who laud his prudence in refraining from the attempt, should remember that his plans against Rome were based on anything but prudence: by daring he had invaded her territory, by daring he had attacked her armies, however superior to his own, and by greatly daring

alone he could hope finally to subdue her. No; the prudence of Fabius might preserve, but that of Hannibal could never conquer Rome.

Whatever might have been the consequences of a more venturous course, it is certain that the battle of Cannæ formed the culminating point of Hannibal's success. Although he afterwards maintained himself in Italy for many years, during which he defeated all the armies that opposed him in the field, his operations seemed no longer either to have a fixed object, or to be attended by decisive results. In vain he awaited reinforcements from Carthage, where, in contrast to Rome, political faction and private hatred were openly balanced against the interests of the state; until at length, reduced to a defensive warfare, and paralyzed by the destruction of Hasdrubal's army on the Metaurus,* he sullenly withdrew into the mountains of Calabria, there to await the moment when the pressing dangers of his country should recall him to her defence.

These dangers arose from no less a cause than the invasion of Carthage by a Roman army, invited by the disaffection of her allies, and the alluring prospect of making her richest provinces the scene of a desolating war. This expedition, entrusted to the command of Scipio, a young but experienced general, was planned on the daring example of Agathocles, who, a century before, when unable to relieve his own capital,

* The march of the Consul Nero from his camp before Hannibal to the Metaurus, whether we regard the boldness of its design or the secrecy and rapidity of its execution, claims to rank among the grandest of military conceptions.

Syracuse, besieged by the Carthaginians, had carried the war into the heart of their territories, there to expose their inherent weakness in the little cohesion of the various states which nominally obeyed their rule.

So rapid had been the progress of Scipio in Africa, that Hannibal was forced to trust the issue of the war to the chances of a general engagement. The armies met on the open plains of Zama, where no obstacle impeded the free action of the cavalry, which formed so large a proportion of either force. Hannibal drew up his infantry in three lines of phalanges, the Italian veterans being in reserve. His cavalry was distributed on the flanks, and in front were ranged a number of elephants, in the employment of which he was little skilled, and which contributed beyond all other causes to his defeat.

Scipio opposed to the Carthaginians a disposition somewhat similar to that of Regulus at Tunis, but probably the intervals between his columns were larger, and his troops were in perfect order when Hannibal commenced the action by a charge of elephants.

Of these unwieldy creatures many passed through the legions without inflicting any injury, but others, terrified by the Roman trumpets, turned back on the Carthaginian horse, which being thus thrown into confusion, and charged at the same moment by Scipio's cavalry, was broken and driven from the field.

The legions now advanced against the first line of Carthaginians, who, after some resistance, gave way; but finding no intervals by which to escape through the second line, fell upon it furiously, and swept it away in a common flight, thus leaving the reserve of

Italian veterans to contend alone against the whole strength of the Roman army.

Scipio, remembering how often the tried devotion of these troops had proved fatal to his countrymen, did not immediately advance to their attack, but rallying his legions from the pursuit, he changed the open order in which they had engaged for the unbroken line of the phalanx, then returning to the charge, the two dense masses of infantry closed in a deadly strife, which was yet undecided when Scipio's cavalry, returning from their protracted pursuit, completed the victory by falling on the flank and rear of the Carthaginians.

Although the battle of Zama is, like Waterloo, more noted for its great results, and the fame of the rival commanders, than for any striking features of its own, yet some instruction may be derived from its study. The premature charge of the elephants, which, like the heavy cavalry of our days, rarely effected much at the commencement of a battle, and the neglect to furnish their drivers with the means of destroying them* when they turned against their own ranks, were attended with fatal consequences.

The close proximity of the two first lines of Carthaginian infantry, and the want of intervals in the second, can only be explained by the presumption that Hannibal, mistrusting the raw levies of which they were composed, desired to increase the ordinary depth of his first phalanx by placing immediately in its rear

* This was usually done by a spike driven into the spine of the elephant, much on the same principle that a gun is spiked when likely to be turned against those who possess it.

another, destined rather to join it in giving or receiving the shock, than to replace it in the event of defeat.

The superiority of the Romans in cavalry is a proof of the energy with which they laboured to repair their deficiencies. They justly attributed much of Hannibal's success to the number and excellence of his Gallic and Numidian horse; and now, in their first victory over the great Carthaginian, they opposed him with an overwhelming force of those very Numidians, whose value they had learnt on many a disastrous field.

This preponderance in cavalry enabled Scipio to reap the full fruits of victory. The annihilation of the Carthaginian army left that state at the mercy of the conquerors. Henceforth the progress of ancient military art may be traced exclusively in the history of the Roman people.

The old legionary system, under which the armies of Rome had achieved so many triumphs, was not abandoned till those triumphs had destroyed the last rival of her greatness. This revolution, which marks an era in her military history, was effected by Marius, whose name has been given to the new order which he introduced. In it, the distinctions of Hastati, Principes, and Triarians were abolished; the subdivision into maniples, considered too minute, was exchanged for one into cohorts, each of which comprised one maniple of the three different classes of soldiers, and thus the unit of force was raised to 300 regular infantry.

The depth of the files remained unchanged, but by ranging the cohorts with diminished intervals on two

lines instead of three, an approach was made to the phalangial order, and the reserve of the legion was virtually suppressed, for that term cannot be justly applied to the cohorts of the second line, which, placed immediately in rear of the first, were liable to be engaged simultaneously with them. This want of a reserve was the great vice in the order of Marius. His having decreased the number of divisions must be accepted as an improvement. The cohort was far superior to the maniple as an element of force; it was equally capable of being directed by the voice of one leader, while its adoption offered fewer flanks to the enemy's attack, and simplified the formation of the order of battle. But this wholesome change did not necessarily involve either the amalgamation of the three classes of legionaries, or the suppression of the reserve. By retaining the three lines of Hastati, Principes, and Triarians, and dividing each into four bands, Marius might have adapted the old legionary system to the increased armies of Rome, and the more extended field of their operations, without deserting those principles which, for many ages, had withstood the severest tests.

If the results which attended the tactical reforms of Marius are uncertain, those which followed his opening the ranks of the army to the lowest dregs of the people, were less doubtful and far more disastrous. Hitherto the privilege of serving their country in arms had been jealously reserved to the worthiest sons of the republic. The possession of landed property was a necessary qualification for a Roman soldier; the pay he received barely sufficed to furnish the most scanty subsistence; and as those who had served were alone eligible for the civil offices of state, the noblest

and most ambitious spirits turned towards the army, as the sole means of obtaining distinction or advancement. But in the civil wars of Marius and Sulla those wholesome regulations, which had been occasionally relaxed in periods of extreme danger, were wholly laid aside. The legions were filled with felons and enfranchised slaves: the germs being thus spread throughout the army of that corruption which reached maturity under the empire.

Alienated from the state, the soldiers attached themselves to those leaders who promised the highest pay and the most unbounded license. Enriched by the confiscated lands of citizens, they found a never-failing source of wealth in the misfortunes of their country, and soon learnt to respect, and even to acknowledge, no authority but that of the successful general.

The army being thus severed from the civil body of the republic whose political functions they usurped, a military despotism became the only possible form of government. A succession of dictators seized the supreme power, and convulsed the state with their alternate triumphs and disasters, until Cæsar, more able and far-seeing than his predecessors, restored tranquillity to his country by destroying the last vestige of her liberties.

The Commentaries of Cæsar form the most valuable military work of ancient times. Their pages breathe the spirit of the Roman legions at a time when their discipline had indeed received some rude shocks; but when they yet displayed the stern self-denying energy of their fathers. Through the easy clearness of his narrative we enter into the motives and opinions

of the general. We admire his vigorous conceptions and the electric rapidity of his strokes; but beyond all, we admire the boundless variety of his resources, and the completeness of the duties which he assumed and scrupulously discharged. As chief of the army, he not only directed its marches, and led it in battle; but he dwells with pride on the happy artifices of his siege operations. He relates how he procured supplies in the enemy's country, and often obtained by negociation and treaty what he despaired of gaining by force of arms; how he built ships of novel design, destroyed the enemy's fleets, and even transported one of his own by land; how he constructed impregnable works, and threw bridges across the most rapid rivers: so that Cæsar included in the office of a Roman general those of admiral and naval architect, of ambassador, commissary and engineer; and thought no detail beneath his notice which might contribute, however remotely, to the safety and welfare of his army.

This universality of his genius gave to all Cæsar's enterprises a unity of design which can rarely characterize those of a less versatile commander. Since artillery and fortification are treated as distinct sciences, and a vast accumulation of stores has become necessary for the maintenance of an army in the field, custom has sanctioned a division of power among various departments which is doubtless beneficial when confined to matters of executive detail. But whenever a general has had the power and the will to desert the beaten track, and assume the responsible control of every branch of his army, then experience has proved that the great operations of war are ever

most successful when they all obey the original impulse of one mind.*

Cæsar restored to the legion the reserve of which it had been deprived by Marius, and which became the more necessary, as he constantly united his two principal lines so as to offer an unbroken front to the impetuous charges of the Gauls and Germans. This frequent approach to the phalangial order proves that the Romans recognised its superiority over that of the old legion for resisting cavalry and striking decisive blows. They endeavoured to combine the advantages of both systems, by employing the one for manœuvring and the other for the crowning effort of battle.

The formation of mixed bodies of horse and foot, which Cæsar copied from his barbarian enemies, has been censured by those who have noted the failure of every attempt to revive the system in later times. But in

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* Wellington's despatches prove that the subjects of transport, butchers' meat and butchers' bills, engrossed no small share of his attention. The following letter, written by Napoleon, at a time when he wielded the destinies of empires, speaks for itself.

'Monsieur le Général Drouet—Review the fusileers of my guard at Marrac, and dispatch two hundred fusileers, well-clothed, well-armed, and provided with everything. Let them be accompanied by one officer, two sergeants, and four corporals. Direct this detachment of two hundred men upon Burgos. They must each have two pairs of shoes in their knapsack, and one on their feet, their capote, and fifty rounds of cartridge. Let them not set out before you are certain that they are provided with all this. On which I pray God to have you in his holy keeping.

'*Aranda, the 29th of November*, 1808.

'NAPOLEON.'

comparing the tactics of ancient and modern cavalry, we must remember that they went into action on very different principles. In our day, cavalry, at least that which is worthy of the name, manœuvres rapidly, and prevails by the force of regularly successive charges. But that of the ancients was unacquainted with the use of saddles and stirrups, while some did not even employ bridles. Thus, loosely seated on horses over which they had little control, they were easily thrown into disorder. They relied more on the effect of their missiles than on the weight of their charge, and frequently dismounted in order to engage the enemy. To such horsemen, and especially to those of Rome, who were always indifferent, an admixture of foot soldiers may have given the solidity they so much needed, without sensibly retarding their movements, which were of necessity slow. In this instance we see the futility of applying to modern warfare the tactical details of the ancients. It is by a comprehensive study of their principles, not by a servile imitation of their acts, that we may best profit by the bright examples which they have bequeathed to us.

If we consider merely the exploits of Cæsar and his army, we shall find few traces of that decay in the military spirit of Rome, which, nevertheless, dates from the civil feuds of Marius and Sulla. No general ever commanded braver or more enduring troops, or was by them more beloved and cheerfully obeyed; yet he valued discipline too highly to sacrifice any part of it to a fleeting popularity, but rather increased its stringency, whilst he centred in himself the hopes and affections of his army.

The Roman discipline embraced not only the most exact subordination and implicit obedience to superiors, but also a course of those exercises which invigorate the body and increase its powers of endurance. In addition to military evolutions and the familiar use of arms, leaping, running, swimming, and dancing formed part of the education of a Roman soldier, whose chiefs dreaded idleness as the most pernicious of evils. The custom of forming intrenched camps, so essential in war, was preserved in peace to furnish employment for the army; and to this day the massive remains of roads and aqueducts attest the useful industry of the Roman legions.

Frugality was a necessary virtue to troops who excelled in the rapidity of their marches, and never allowed their movements to be hampered by the necessity of preserving long lines of communication. Bread, salt meat and vinegar were the fare of the Roman soldier, and of these he sometimes carried sufficient for twenty days' consumption. His ordinary burthen was double that of a modern infantry soldier, and under it he performed daily marches of an average length of fifteen miles; but in a case of urgency the Roman legions have been known to traverse in five hours a space of twenty-four miles. Handmills, mounted on wheels, and drawn by mules, accompanied the army on its march, and enabled it the better to profit by the resources of the country which it traversed: these were seized for the common benefit, but private plunder was reprobated by the generals, who desired to command, not only brave soldiers, but honest men.

This all-pervading discipline, encouraged and en-

forced by a judicious system of rewards and punishments, had ever formed the strength of the Roman armies, and now, although it might no longer spring from the purest source,* it secured their triumph over enemies far more numerous and not less brave.

If we possessed no details of the system under which the Roman armies were supplied and subsisted, many circumstances would force upon us the conviction that it was of the most perfect kind. The facility of rapidly traversing a vast extent of country, the high state of discipline maintained, the stringent rules against pillage, all point in one direction—all are of necessity based upon a good administrative organization.†

Accordingly we find that, in the days of their greatness, the Romans were a nation of administrators. Cæsar, their foremost general, studied war as Quæstor, or chief officer of supply to the army of Spain; and Cicero, their greatest orator, discharged similar duties in Sicily. There were magazines in the towns, magazines on the military roads, and magazines in the private houses. Large distributions of corn formed the favorite means of bribing practised by the rich; and the State could, without any extraor-

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* Cæsar was forced largely to increase the pay of his soldiers.

† No disciplined army can act at any distance from its base of operations unless supported by a good system of administration. Homer mentions as a distinct class 'the dispensers of the soldiers' food;' and, in the later Greek armies, Ephori, assisted by purveyors and treasurers, directed the supply and finance of the troops.

dinary effort, undertake to supply the whole population with food.*

The Romans, who well knew the value of clearly defined functions, classified their military administration, as the French do at present, under the two distinct heads of command and supply. The Quæstor, nearly corresponding to the French Intendant, was the principal officer of supply, and possessed very extensive powers.

Under the Quæstors were the Præfecti Ærarii, who acted as treasurers and paymasters;† the Præfecti Annonæ and Frumentarii, purveyors of provisions and forage; the Mensores, charged with housing and camping the troops; and the Impedimentorum Magistri, who superintended the transport and baggage. Thus, whether a Quæstor was appointed to a province, to an army, or, as was done by Cæsar, to a single legion, he found himself at the head of a highly-organized system of administration—a system which even in these days may be profitably studied; and which contributed, perhaps, not less than the courage and discipline of the Romans to the rapidity of their conquests, and the firmness with which they were retained.

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* The daily supply of food in the vicinity of their homes, to upwards of 3,000,000 Irish, during the terrible famine year, was perhaps the greatest and most successful administrative operation of this kind recorded in either ancient or modern history.

† Roman soldiers first received pay at the siege of Veii, about four centuries before the Christian era. Originally fixed at little more than three halfpence a-day, it gradually rose to fivepence under Cæsar, a shilling under Vespasian, and fifteenpence under Domitian; but from these sums small deductions were made for rations, equipments, and even tents.

Having reached that period when the Military Science of the Ancients was at its highest, we may glance at their system of the attack and defence of fortresses, not the less interesting to us because it alone, of all their warlike craft, survived unchanged through the darkness of the Middle Ages, until the effects of gunpowder became sensibly felt in war.

From a very early date, it was the custom to fortify towns. The desponding Israelites said of the Promised Land, 'The people is greater and taller than we, the cities are great and walled up to Heaven,' an expression which scarcely appears overstrained, when we consider the prodigious height of ancient fortifications. The walls were generally of brick or stone, sufficiently strong to withstand the engines of the besiegers; but a stronger defence consisted of two parallel walls, connected by huge beams, and having the interval between them filled with earth. The front of the wall was covered by a ditch, which was flooded when practicable, and beyond were sometimes found rows of pits, and also outworks, crowning commanding positions, and connected by trenches with the main body of the place. Behind the wall a platform of convenient height allowed the besieged to wield their weapons under cover of the battlements; and here and there the outline was broken by towers or small bastions, which, containing each an engine or a few archers, afforded a feeble flank defence. The gates were of massive strength, sometimes armed with sword-blades and scythes, and surmounted by projecting galleries, from which the besieged could either crush with stones, or parboil with heated liquids, those who attempted to approach.

Weak and rude as these defences appear, when compared with the elaborate works of our day, they were yet immeasurably superior to the means of attack. The strongest fortress of modern times is doomed soon to fall, when invested by an adequate force, well-furnished with material and guided by science; but an ancient stronghold might hope to weary and baffle its besiegers, if it were only secure against famine and surprise. The protracted sieges of Platea by the Spartans, of Rhodes by Demetrius, and of Veii and Syracuse by the Romans, prove the impotence of an attacking force, when met with equal courage and resolution by the besieged.

The advantage being thus on the side of the defence, military men applied themselves assiduously to improve the means of attack. Experimental science, disdained by many of the philosophers, was eagerly cultivated by the soldiers of antiquity, who first applied it not only to warfare, but even to the useful purposes of life, while mechanics, as distinguished from geometry, was long esteemed a branch of purely military art.

Of the engines employed in the attack of strong places the battering-ram was the chief.* It usually consisted of a heavy beam of wood, armed with a metal head, suspended horizontally in a frame rolling on wheels, and protected by a fireproof covering. It was worked by hand, through the agency of ropes and pulleys; and one with a sharp-pointed head was used at the commencement.†

* It has been conceived that the wooden horse of Homer was merely a poetical metaphor for a battering-ram.

† In this we may trace an analogy to the present system of

In connexion with this engine a grappling-iron, fixed in a long beam of wood, was employed to tear aside the nooses and mattresses, with which the besieged endeavoured to entangle the battering-ram, or to deaden its effect. The grappler was also directed against the battlements, and against the slight temporary works erected by the besieged. The balista, the onager, and the catapult, deriving their propelling power from the torsion of ropes, hurled darts, stones, and other missiles against the walls. These engines, which were also used by the defenders, will be found in the days of military degeneracy playing a foremost part in the field of battle.

Wooden towers, rolling on wheels, and having interior platforms, were much employed in attack. They sheltered archers in a commanding position, and facilitated the lodgment of stormers on the walls, either by means of a drawbridge, capable of being suddenly lowered, or by a crane, which, with a rapid sweep, discharged on the battlements a case full of armed men. Some of these towers* were extremely complicated in structure, having a battering-ram on the ground floor, archers on the intermediate, and on the upper one a drawbridge or crane, with an attendant storming party.

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breaching walls, in which lines are at first cut, as by the penetration of the pointed ram, after which the intervening masonry is brought down by salvoes of artillery, producing effects of vibration and concussion similar to those of the square-headed rams.

* The largest on record was built by Demetrius, at Rhodes. It was 150 feet high, on a base of 75 feet square; it was plated with iron, contained nine stories, and two staircases, and required 3,400 men to set it in motion.

Mines were much resorted to by the besiegers, with a view of either introducing a body of armed men within the works, or of making a breach in the defences. In the latter case, a gallery was excavated under the base of the wall, thus sapping its foundations, which were supported, as the work progressed, by wooden frames. At a signal, these supports were set on fire, when, yielding to the pressure from above, they fell, bringing down with them a portion of the wall, and thus effecting a practicable breach.

To oppose these varied and ingenious means of attack, the besieged raised up wooden towers above the masonry, so as to retain the command in elevation. Through the agency of cranes,* they either crushed the enemy's machines with masses of stone and metal, cut through the ropework with scythes, or, lifting them aloft with grapplers and nooses, they dashed them violently to the ground: while, from loophole and battlement, they poured forth a constant stream of arrows and flaming missiles. The mines, of which the success was so much to be dreaded, they met by skilfully constructed countermines; and, lastly, by frequent and powerful sallies, they harassed the besiegers, and retarded their works.

When a fortress promised to resist surprise and escalade, the Romans proceeded in due form to raise lines of circumvallation and contravallation; the latter to resist attacks by the garrison; the former,

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* Some of these cranes were sufficiently powerful to lift ships out of the water, causing Marcellus, at the siege of Syracuse, to say of Archimedes, who commanded the defence, 'That he used the Roman galleys as buckets to draw water.'

those of a relieving army. It was in these works, and in their camps, which they never neglected to fortify, that the constructive skill of the Romans was most manifest: for being in the days of their greatness a conquering nation, they had more experience in such temporary works, than in the defensive fortification of towns. Their lines, about twelve feet thick and four in height, were usually formed of alternate layers of fascines and earth; they were strengthened by the palisades which the Roman soldiers carried as part of their camp equipage; they were covered in front by a ditch, and sometimes even by two, and were flanked at convenient distances by wooden towers.

From their lines of contravallation, the Romans advanced by trenches against the front of attack. When within bow-shot of the place, the approaches were carried on undee cover of a moveable roof, somewhat resembling that of the battering-ram, and, like it, often made fire-proof by a covering of fresh hides. Close to the wall the trenches of advance were connected by one which intersected them perpendicularly, and which, like the modern parallel, served as a place of arms, and also to cover the collection of material.

The next step was to fill the ditch with earth and fascines, and to level the ground, so as to give full play to the battering-rams and towers, which now entered on their part of the contest. But sometimes the extraordinary height and thickness of the walls forbade all hope of either commanding them by towers, or making a breach in the usual manner; then, with all patience, the besiegers set to work, and raised a lofty earthen terrace, upon which, as on a platform, they carried out their operations.

Thus we see, on both sides, much energy, artifice, and craft; a vast array of engines, towers, mines, countermines, and fiery missiles; we see a constant striving and contention of men underground, mounted up on high, and even suspended in mid air; yet, withal, a loss apparently quite disproportioned to such multiplied efforts. These sieges were comparatively bloodless. Tyre detained the splendid army of Alexander for seven months, yet cost him but 400 men; and some of the most protracted of ancient sieges were completed with a loss which, in our days, is frequently exceeded in storming a paltry village.

The final establishment of despotism failed permanently to check the growth of those abuses which had spread so widely through the army during the civil wars, and which it had required all the force of Cæsar's character to arrest. Without attempting to separate them altogether from the sources of her general decline, we may here consider some of the more purely military causes which accelerated the fall of Rome.

Under the Republic, service in the ranks was a necessary apprenticeship to all the responsible offices of State. Courage and conduct in the field were accepted as pledges of firmness and wisdom in the council; and a course of military probation was thus established for all who aspired to share in the government of their fellow-citizens. This institution, so wise in a nation, the normal condition of which was war, fell before the sway of a despotism, which was of necessity based upon rival and conflicting interests. As the intestine wars of Rome had deadened the patriotism of her army, so this severance

of the civil and military orders tended to destroy the healthy ambition and emulation which had pervaded its ranks. The inducement to enter the service decreased with the prospects of advancement which it offered. The noble and influential sought other careers less laborious and more grateful; and the army was recruited more and more from the lowest classes of society, and from the most recently annexed provinces.

But the heaviest blow received by Roman discipline was the invidious distinction drawn between the troops of the frontier and the guards of the capital—between those who endured the hardships and privations of the military state, and those who engrossed its preferment and emoluments. While veteran legions extended the dominion, or resisted the enemies of the Empire, a chosen body of Prætorian guards, vain of their superior pay and privileges, terrified and oppressed the peaceful citizens of Rome. An armed force maintained to overawe the populace, and enforce the edicts of a tyrant, could not long remain ignorant of its power, or refrain from exerting it. At first, merely ratifying the choice of the Senate, the Prætorians soon aspired to the exclusive right of nominating the Emperor. Increased pay and relaxed discipline were the rewards which they extorted from their favored candidates. An attempt to restrain their license was met by assassination; they claimed, as a legal perquisite, the bribes which marked each successive elevation to the throne, and reached the lowest depths of infamy by exposing, at public auction, the first dignity of the State.

With corruption thus deeply rooted in the heart of

the army, its extremities could not long remain untainted. Armed deputations from the provincial legions proclaimed their grievances, and asserted their right to share in the general plunder. The rival forces at times supported their pretensions in suicidal wars; but they more frequently combined to wring fresh indulgences from the creature whom they had seated on the throne. Defensive armour and the raising of intrenchments were abandoned as oppressively irksome; the ancient exercises were discontinued, and the Roman weapons exchanged for the lighter missiles of the barbarians. Fortresses and engines of war—means which may second the efforts, but can never supply the place of valor, were multiplied without end. An age of pedantry succeeded one of energy and action. Bureaucrats, the children of dulness and precision, ruled in high military places. Curious theories of tactics, voluminous reports and complicated orders of battle abounded when the Empire possessed neither a general to direct, nor an army to execute the simplest operations of war.

To represent the course of this degeneracy as uniformly progressive would doubtless be incorrect. Some of the most warlike and successful of the emperors more than once arrested the fatal current. But neither their conquests nor their wholesome severities were attended by permanent results, and under the feeble rule of their successors, discipline and morality receded below the point at which their own reforms had commenced. As the weapons and armour of their ancestors were abandoned by the indolent Romans, they were gradually adopted by the barbarians, who had more than once experienced their

terrible efficacy. These, superior in arms and discipline no less than in courage, drove the wretched legions from the field, and would speedily have overturned the State had not their forbearance and services been purchased by liberal bribes. The wars which preceded the dissolution of the Western Empire were waged between two classes of barbarians—those who received, and those who disdained her pay. Neither promises of liberty nor gold could allure into the ranks the slaves of a State whose free citizens had formerly disputed the honour of bearing arms in her defence. A national army had long ceased to exist when the Gothic banner, waving from the walls of Rome, proclaimed that her sovereignty over nations was no more.

# CHAPTER II.

The Barbarians—The Franks—Charles Martel—Battle of Tours—The Feudal System incompatible with Military Subordination—Degraded state of the Infantry—The Normans—Their discipline—Invasion of England—Battle of Hastings—The Crusades—They do not advance Military Science—In the Middle Ages the English first recognise the value of Infantry—Crecy gained by the English archers and dismounted men-at-arms—Superiority of the Long-bow over the Cross-bow—Invention of Gunpowder—Early Artillery, its Inefficiency, its Effects upon the Feudal Fortresses—Employment of Small Arms—The Swiss Pikemen overthrow the Burgundian Chivalry—Importance of Infantry universally acknowledged—Timour—His Institutions—His System of Manœuvres—He has never been surpassed as a Cavalry Leader—His Victories—The Feudal System disappears on the establishment of standing armies—Sagacity of Charles the Seventh of France—He makes himself independent of his Nobles—His permanent Forces—Charles is imitated by other Monarchs.

THE barbarians who from every side pressed forward to share in the spoils of ancient Rome, were inured to war, and organized for invasion. They advanced with the order of armies and the weight of nations. They wore little defensive armour, and fought chiefly on foot. To them applied the expression of Tacitus, 'Omne robur in pedite.' However these freemen might differ in other respects, they resembled one another in this—that they followed at their own pleasure a leader of their own choice.

Honor forbade their deserting a standard under which they had enlisted for a special purpose; but that object once accomplished, the compact was at an end, and nothing restrained them from returning to their homes. They even took upon themselves to determine how far the plans of their leader conduced towards the common end which they had in view; and upon their approval of his acts depended their obedience to his commands.

This license was more favorable to individual prowess than to concerted action. The general, depending for support on the goodwill of his followers, was often forced by their uncalculating valor, to risk in premature efforts those resources which he had husbanded for a decisive blow. A well-regulated military force is essentially obedient: it acts, but never deliberates. This is a first condition of success; but when the camp becomes one vast council of war, it would be idle to seek for subtle strategy or even skilful combination. Narses and Belisarius, at the head of degenerate but submissive troops, might produce pale, feeble copies of Cannæ or Mantinea; but the freemen of the West were content to prevail by their native courage and hardihood, their skilful use of arms, and the ceaseless overwhelming pressure of their masses.

Among these warlike nations, the Franks obtained so decided a pre-eminence, that a warrior of this race may be viewed as no unfavorable type of the whole. He was lightly clad in close-fitting garments. He were no head-dress; his reddish hair being gathered in a knot, and floating down his back like a horse's tail. A large shield was his only defensive armour.

He wielded the sword, a hatchet called after him, Francisca, and the javelin: on this latter weapon was bestowed especial care; its point was barbed, and its handle plated with iron to protect it from the enemy's sword. He opened his attack by hurling this javelin against the foe, who generally received it in his shield, which it penetrated, and dragged down by its weight. Taking advantage of this circumstance, the Frank rushed forward, and pressing his foot on the trailing end of the javelin, he completely uncovered his enemy, whom he now attacked at close quarters with his hatchet.

The strength of the Franks consisted entirely in their infantry, their only mounted force being the small escort of their chief. They charged with loud cries, in masses which sometimes approached the form of a wedge. They have been described as brave, even to the verge of rashness: looking upon a retreat as shameful flight, upon flight as indelible infamy. As soldiers, they had many faults. They were bad horsemen, and careless sentinels, much given to mutiny and intemperance, and liable at all times to be surprised. Yet withal, when ably led, they were capable of great things. At Tours, under Charles Martel, they stood in the foremost front of those iron bands, which for seven days bore up against the impetuous charges of the Saracens, and finally, by sheer strength and hardihood, drove them from the field. It is probable that on this occasion the Frankish infantry was massed in solid squares. In the words of the chronicler, 'Dieu fût pour les gros bataillons.' The want of cavalry prevented successful pursuit; yet from that hard-fought field,

the tide of Saracen conquest had rolled back for ever.

Charles Martel was no ordinary leader of barbarians. His great qualities shine the more brightly when contrasted with the dim poverty of the age in which he lived. Well was he named from the irresistible weight of his strokes; not weighty only, but rapid. Those who compare the campaign, in which during one year he fought on the Elbe, the Rhone, and on the shores of the ocean, with the clumsy slaughters of the more widely famed Charlemagne, will fully value the only spark of soldiercraft, which relieved a long dark age of purposeless and monotonous disorder.

Whatever promises might have been held out of a revival in military art, they were dissipated by the rapid growth of the Feudal system, which, under slightly different aspects, overspread the greater part of Europe. The territory conquered by freemen was distributed amongst them on the simple condition that each proprietor should appear in arms against the enemies of the community, with a force proportioned to the extent and value of his possessions. Thus was created a number of petty chiefs, with ill-defined and rival authority, who being compelled to maintain a body of armed followers, found constant occupation for them in domestic feuds, when their services were not required against a common foe.

With the Feudal system, and with chivalry, sprung from the splendid court of Charlemagne, the aim and object of war was changed. No longer the resource of far-sighted prudence or ambition, it came to be pursued rather as a luxury than a necessity. Revenues

were squandered on costly armour and gaudy trappings; prowess was esteemed the sole military virtue; the proportion of cavalry rapidly increased, while infantry, requiring order and combination, fell into disrepute.

Nor was the prospect more cheering when a number of these feudal lords assembled, ostensibly to act together under a nominal chief. At times the ascendency of a strong mind made itself felt, and established some degree of control: but more frequently we find each leader, if not aspiring to the chief command, at least claiming for his followers the post of honor. Incapable of forming any plan of his own, and unwilling to obey the orders of another, each plunged, on his own account, into one of those battles of confusion and slaughter, so often begun without an object, and terminated without a result.

But if disorder was the characteristic of feudal cavalry, degradation was not less that of the infantry, which had become despicable by force of being despised. Instead of those serried bands, on whose conduct had formerly depended the fate of battles, a miserable rabble of varlets followed the horsemen at a respectful distance, and generally reserved their efforts for pillage and rapine: or if by chance they took any active share in the engagement, it was only to assist in remounting those knights of their own side who lay unhorsed, and encumbered by their armour, or to dispatch* those of the enemy whom they found in a similar predicament.

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* It was far easier to unhorse than to kill one of the hermetically-sealed warriors of the Middle Ages, the strength and artful

Whilst luxurious chivalry and feudalism were thus sapping the foundations of military order, its true principles were cultivated by the hardy children of the North, who found in an exact discipline and organization the means of rapidly subduing the fairest portions of Europe.

The irruptions of the Northmen have too often been pictured as the terrible, though random attacks of pirates: but later research has proved how much of method and combination reigned over all their enterprises. The ships in which they left their inhospitable homes were filled with armed men, carefully trained in evolutions and tactics under experienced chiefs, who in their turn submissively obeyed the leader of the whole expedition. Wave after wave of this adventurous people broke on the coasts of Europe, and wherever an inlet or a river permitted the passage of ships, the Northmen pushed their way—there to disembark methodically, and to form fortified depôts, issuing from which, they swept before them the feudal levies, and speedily reduced the surrounding districts under their sway.

In a few years from the first invasion of the Northmen, there was scarcely a part of Europe in which the weight of their arms and influence had not been felt. Everywhere successful, their alliance was courted by the most powerful monarchs, who were glad to purchase their favour and forbearance by the cession of rich tracts of land. On these, as notably

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structure of whose armour rendered it almost impervious to the sword or lance. Thus, the fallen knight often lay for hours awaiting the undignified fate of being eventually cracked, like a lobster, in his shell.

in Normandy, Sicily, and Naples, they settled down, and long remained distinguished from the surrounding people by their superior civilization and military skill.

The invasion of England by the Normans, if it does not discover any high degree of science, at least affords proof of a subordination in the masses, and of method and soldiercraft in the leaders, which were sufficiently rare in that age to be worthy of notice.

Looking upon England with a covetous eye, William of Normandy, by exercise and discipline, prepared an army for its subjugation. Besides his own feudal followers, he gathered to his standard all the chivalry of Europe that could be seduced by lavish promises or the love of adventure. Whilst he was moulding his new levies into a shape approaching that of a regular force, he encouraged, as a diversion, the irruption into England of a Norwegian chief; and Harold's hands being thus kept full in the north by this last of the Sea-Kings, whom he finally overcame, William, having eluded the British fleet, transported an army of 60,000 men to the coasts of Sussex, and disembarked without opposition, between Bexhill and Winchelsea, late in the autumn of 1066.

Harold marched with all speed from the north to meet this new invader, and called on all his subjects to rise in their common defence. At this period the defence of England was chiefly entrusted to a militia, of which one soldier was furnished by every five hides* of land. The force thus raised amounted to

* The hide of land was about 120 acres.

about 50,000 men; but as most of the peasantry possessed arms, it could be easily swelled on an emergency. Yet, whether it arose from his heavy losses in the north, or from the rapidity of his march, it is certain that Harold's army was far inferior in numbers to the invaders whom he hastened to oppose.

Having failed in an attempt to surprise the Normans, who had formed a fortified depôt, strengthened by wooden towers transported by their fleet, Harold was strongly urged to retreat on London, laying the country waste before the superior forces of the enemy. But great as might have been the strategic advantages of this plan, Harold's humanity recoiled at the desolation which must thus have fallen on a large portion of his subjects, and he boldly intrenched himself in a well-chosen position within a few miles of the Norman camp.

His army, which stretched along some gently undulating slopes, having a roughly wooded country in rear, consisted almost entirely of foot; while the strength of the Normans lay in their splendid cavalry: and it is not a little remarkable that the English, who were destined so soon to excel all Europe in the use of the bow, had not on this occasion a single archer in the field, their light troops hurling stones and javelins in reply to the arrows of the Norman mercenaries.*

William led his army to the attack in three grand divisions, of which he in person commanded the cen-

* It is stated that, at Hastings, the Norman archers wielded the long-bow, while their Flemish allies were armed with the cross-bow.

tral and most numerous. The wings first advanced, covered by a cloud of archers, who, being met by the English skirmishers, soon rendered the engagement general. As neither army was sufficiently disciplined to manœuvre with precision before an enemy, we must consider the battle of Hastings as affording a contrast of methods and weapons rather than of tactics. The English regular infantry fought in serried bands, in which shield touched shield; and being covered by a double intrenchment, they remained purely on the defensive throughout the greater part of the day. They were heavily armed with battle-axe, spear, and club; and they seem to have relied rather on the smashing weight of those weapons, than on their own dexterity in wielding them. They could scarcely aim one of their terrific blows without opening themselves to the sword-point of their adversaries.

Before the battle Harold thus speaks: 'They have brought long lances and swords, but you have pointed lances and keen-edged bills. I do not think that their arms can stand against yours. Cleave* wherever you can.

The Normans, on the contrary, prided themselves on their graceful ease in jousting and handling their favorite weapons. They, therefore, maintained a looser order, calculated to give more scope to individual prowess and skill.

* It is worthy of remark, that to this day, our cavalry are more prone to cleave down with the edge of the sword than to pierce with its point. In order to check this natural but pernicious impulse, Marshal Saxe recommended that the French cavalry should be armed with a straight, three-edged sword, unfit for cutting.

But, however superior in hand-to-hand encounters, they failed to make any impression on the solid English masses; and every knight that penetrated within the trenches had instant cause to repent of his temerity. Thus for many an hour the battle was obstinately waged, with little advantage on either side, and great slaughter on both; till at length the foremost bands of the Normans, worn out by frequent repulses, began to retreat* down the slopes.

William, who knew that he had staked his all upon the issue of this day, instead of vainly attempting to rally the dispirited troops, rather favored their movement, by also retreating in good order with his reserves. This measure was attended by its hoped-for result. The English, so formidable in their serried and impenetrable ranks, believing the discomfiture of the enemy complete, burst from their intrenchments, and overspread the plain. It was then that the superior skill and discipline of the Normans prevailed. Returning to the charge, they pressed the disbanded English on every side. Harold, whilst endeavouring to reorganize his broken forces, was killed by an

* Many writers describe the first retreat of the Normans as merely a snare to draw the English from their vantage-ground, and point to Cannæ, and even to Harold's victory over the Norwegians, as parallel cases. But if such a movement, trying to highly disciplined troops even at the commencement of an engagement, had been originally contemplated by William, the fearful slaughter at the intrenchments would have been a wanton sacrifice of his soldiers' lives. Hence I incline to the more probable version, which describes the retreat of the Normans as first arising from real distress, and then being encouraged by William, in order to restore confidence to his troops, by covering it with the appearance of design.

arrow, and William the Conqueror found himself master of the field of battle, and of England.

It has been said that, with the Norman Conquest, the Feudal system came full-fledged into England. But, however deeply its institutions may have been planted in our soil, it is certain that they did not bear the bitter fruits which marked their growth upon the Continent. Under the successors of William, England was soon distinguished from neighbouring countries, not only by the mildness of her government, but by the superior spirit and independence of her yeomanry and peasants, who furnishing the material of a sturdy and resolute infantry, when in other countries that force was a mere slavish rabble, contributed in no slight degree to the victories and triumphs which crowned her arms.

The Crusades, which during two centuries absorbed the most warlike spirits of Europe, exercised so slight an influence on military art, that we can scarcely tax with exaggeration those who describe the acquirements of the Christians in the East as limited to the use of the cymbal and the drum.

If we premise that the permanent conquest of the Holy Land was beyond the strength of the Prince who undertook it; that the force employed in the attempt, consisting of heavy-armed cavalry, was, of all forces, the least fitted to succeed; that it was impossible from such a motley gathering of warriors to select one recognised and responsible chief; and finally, that the Saracens of the twelfth and thirteenth centuries were far superior in military skill to their European aggressors, we may dispense ourselves from following the errant deeds of the Crusaders, which have

been summarily but not unfairly described as 'Blind achievements, performed by strength and recorded by ignorance.'

In the numerous sieges which mark the progress of the Crusades, the engines* and contrivances of antiquity reappear on the scene with scarcely any improvement, if we except the frequent use of Greek Fire,† an inflammable and destructive compound, the origin of which ascends to a very early period.

In all the operations of a campaign, we find the Saracens drawing constant advantage from their superior craft and skill. Hanging on the flanks and rear of the Christian army, they patiently watched for the unguarded moment of confidence, and of weakness; then swooping down on their prey, they attacked and destroyed each isolated division in detail. Perhaps the most notable achievement of

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* The counterpoise of heavy weights had been substituted for the torsion of ropes as the motive power of these engines; and, by adding a sling to the projecting arm of the lever, a higher degree of velocity was attained.

† Several distinct agents appear to have been confounded under the common designation of Greek Fire. Of these the chief were liquids, having naphtha for their base. Some were ignited by the simple action of the air; others by contact with wood, or any inflammable substance. Again, we find a mixture used in propelling a rude description of rocket; and to this variety of the so-called Greek Fire has been plausibly traced the origin of gunpowder. In an old metrical romance, published by Warton, Richard Cœur-de-Lion is thus represented as employing Greek Fire from his own galley:—

'King Richard out of hys galeye
Cast wylde fyr into the skeye
And fyr gregys into the see,
And all on fyr were the!'

the crusaders was the victory of Antioch, where they cut their way on foot through the countless hosts by whom they were surrounded. This triumph was due in no slight degree to the previous destruction of their horses by famine. Thus compelled to fight dismounted, they afforded a signal, and at that period a rare instance of the superiority of infantry over cavalry for the general purposes of war.

The dreary drama of the Holy Wars finally closed with the capture, imprisonment, and death of St. Louis of France: not however before he had left an example of sagacious strategy, by attempting to form a base of operations in Egypt, from which he might take the strongholds of Palestine in reverse. Although this design, which has received the approval of Napoleon, miscarried through the indiscretion of subordinates, it is not the less worthy of praise, as a solitary instance of science in a dark and barbarous age.

Indirectly the Crusades exercised a vast influence on the military systems of Europe. By impoverishing the great nobles, they tended materially to diminish their power, and to strengthen the royal authority, which was further increased during the 12th century by the efforts of several monarchs to render themselves comparatively independent.

Louis the Fat of France, disgusted with the insubordination of his barons on whom he relied for a military force, devised an expedient for raising troops without their intervention. He entered into compacts with the inhabitants of several important towns, by which, in return for certain privileges and municipal charters, they were bound to furnish a fixed

number of fully equipped soldiers, horse and foot. It is to these local forces known as the 'militia of the corporations,'* that we must trace the origin of the French National Guard.

This measure of Louis, which did not however dispense with the feudal levies, was widely copied on the Continent, but it was followed by a far bolder stroke on the part of Henry the Second of England.

This Prince, despising the tumultuous bands which his vassals led into the field, commuted their services for a fixed money payment, by which he was able through contractors, often his own barons, to raise a regularly paid and disciplined force, few in numbers, but far superior in war to any other then maintained in Europe.

The decline of the Feudal system was further hastened by the growing importance of infantry, to which even the prejudices of chivalry could not long remain blind. Whether owing to the difficulty of transporting horses† by sea, or to the natural bent of the people, it is certain that the foot service

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* The exposure of the Castilian towns to the depredations of the Moors early brought into play their municipal levies; and so favourable was this circumstance to the growth of liberty in Spain, that, in the twelfth century, she alone of European nations could boast of truly popular representation.

† The vast number of horses required for the service of the feudal cavalry may be estimated by the fact, that the men-at-arms rode hacks during the march, and rarely mounted their chargers till the moment of battle. A trace of this custom, necessary in order to divide the excessive weight of armour borne by the rider and his war-horse, is preserved in the French phrase, 'Monter sur ses grands chevaux,' applied to a man who is getting into a passion.

was highly esteemed by the English, at a time when it was generally contemned by the rest of Europe.

In the long Scottish wars, the mail-clad chivalry of England had more than once succumbed to the hardy mountaineers who opposed them, whilst on the other hand they were often reduced by the unfavourable nature of the ground, to remain idle spectators of the contest which their archers and pikemen were waging with those of the enemy.

In order to raise themselves from a position so humiliating to their pride, the English knights resorted to a device, by means of which, while they continued to impose on the vulgar by their gallant bearing and splendid pomp, they became in reality an effective and formidable force. Retaining the stately charger, the armour and weapons of chivalry, they marched to battle as of yore; but once arrived upon the field, they quitted their horses and their pageantry, to range themselves modestly on foot under chosen leaders, and thus to assert the terrible efficacy of their iron bands.

At Crecy the English vindicated their claim to rank, not only as the stoutest, but also as the most skilful* soldiers of the age; and, indeed, as Schlegel observes, they possessed in a high degree that military instinct which has so often supplied the place of cultivated science.†

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* Kausler speaks of 'la défense reglée et réfléchie des Anglais.'

† The stupid, confiding ignorance of the French and Burgundian leaders is attested by facts sufficiently ludicrous to provoke a smile. In 1347, Philip de Valois endeavoured to relieve Calais,

Their position on a gentle slope was secured by intrenchments from being turned, and it is asserted that its natural strength was further increased by some pieces of artillery, which about this time first appeared on European fields of battle.

The English army, numbering less than 30,000 men, and composed chiefly of infantry, was ranged in three grand divisions or battles. The dismounted men-at-arms formed a solid body in the centre, and were covered and flanked by the famous archers, who, protected from the enemy's horse by stakes driven into the ground, kept up a piercing shower of arrows throughout the day.

The French forces, upwards of 100,000 strong, were also divided into three battles, the first of which consisted of Genoese mercenaries, armed with the cross-bow. But although the doubtful humanity of a Pope had denounced this weapon as wicked and unchristian, it proved no match for the English long-

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then besieged by the English, who were, however, so skilfully intrenched as to offer no vulnerable point. Observing which, he addressed King Edward III., who commanded the English, to the following effect:—'That he was most anxious to relieve his good town of Calais, and seeing no way to attack the besieging force, he would be much obliged by King Edward consulting with him about the selection of a field of battle, equally fair to both armies.' An innocent proposal, which it is needless to say, was not accepted.

In 1356, King John, whilst advancing with all speed, to engage the Prince of Wales, near Poictiers, was astonished to hear that the enemy whom he was so anxiously seeking, was far behind him instead of in front; and in 1406, the Duke of Burgundy, having marched with his siege train in order to take Calais, sat down before St. Omer, by mistake.

bow,* and the Genoese, driven back on the crowded masses in their rear, were cut down† by the French knights, whom they threatened to carry away in a common flight.

Having at length got rid of these equivocal allies, the French endeavoured to restore the fortunes of the day. But it was in vain that the flower of their chivalry couched lance, and spurred against the solid English masses. Everywhere their fiery onset was shattered against impenetrable barriers, and after gallantly maintaining a hopeless contest, they were driven with fearful slaughter from the field.

Although it has been disputed that cannon were used by the English at the battle of Crecy, all doubts on the subject have been removed by the Emperor Louis Napoleon, to whose scientific researches military men are so much indebted. Yet we may fairly question whether these mysterious agents contributed,

* The great superiority of the English archers on this occasion has been attributed to the effect of the rain in slackening the strings of the Genoese cross-bows. It may be asked, why the same cause did not equally operate against the English? But the answer becomes clear when we remember that the long-bow could be easily unstrung and secured in a waterproof case, an advantage which did not extend to the more unwieldy and complicated cross-bow.

† The fate of a foot soldier in the French armies was not enviable. When his cross-bowmen wavered at Crecy, Philip ordered them to be charged by the feudal horsemen, exclaiming, 'Tuez cette ribaudaille qui nous empêche la voie sans raison.' But at Courtrai, where the French infantry had the rare misfortune to behave well, they thereby roused the fury of their own chivalry, who, dreading that the honor of the day should rest with a despised rabble, cut their way through the thick of them, up to the Flemish lines—there to meet with a bloody reverse.

except by their noise and novelty, to the result of the action. An old French writer, in ascribing the victory of the English to their guns, thus logically inveighs against their cruelty and baseness. 'The French had indeed employed this terrible arm in 1338, against some castles; but they would have blushed to turn them against their fellow-men:* the English, less humane, without doubt, outstripped us, and made use of them at the celebrated battle of Creci, under King Edward III. of England, who was so wicked and perfidious, and gave so much trouble to Philip de Valois and his troops.'

It would be at once tedious and unprofitable here to examine and attempt to decide the claims of all the rival pretenders to the invention of gunpowder. Schwartz, Roger Bacon, and Marcus Græcus, have at various times been supported with equal warmth, and probably equal foundation. It is at once simpler and more rational to consider gunpowder as a perfection of one of the many agents so often confounded under the common designation of Greek fire; and merely remarking, in passing by, that its properties were apparently known so early as the 8th century, we may turn to the more important subject of its first application to military purposes.

Artillery, acting by the explosive force of gunpowder, appeared on the theatre of European war in the early part of the 14th century,† an accessory,

* Are we to presume that the castles were without garrisons?

† It is stated, on reliable authority, that cannon were used by Edward III. against the Scotch, in the year 1327. Setting aside the doubtful claims of the Moors, as not satisfactorily proved,

cumbrous, unwieldy, and dangerous to those who employed it; yet, from its novelty and mysterious action, its use rapidly spread, and it soon came to be reckoned an indispensable branch of every great military equipment.

The most serviceable of the early guns were made of iron bars soldered together, and bound by hoops, or of sheet iron rolled, and secured in a similar manner; while wood, coiled rope, and hides entered into the construction of the inferior kinds. It was only after a lapse of many years that they were cast of bronze—a mixture of copper and tin, which, on account of its great tenacity, is to this day highly esteemed for light artillery; and of iron, which recommends itself as the material for heavy guns, by its cheapness and power of sustaining rapid and continuous fire.

It is not surprising that the early constructors of cannon, unacquainted with the laws of projectiles, and relying on no fixed principles, should have given free scope to their fancy, and produced a variety of pieces, scarcely any one of which resembled the other in shape, size, and material. Thus, in addition to the

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this would establish the English as the first to employ fire-arms in European warfare. It is however beyond all question, that explosive compounds were used for warlike purposes, at a very remote period, in those Eastern regions where saltpetre abounds. The first projectiles so propelled appear to have been constructed on the rocket principle: although, according to M. Paravey, Chinese books record the existence of a cannon in the seventh century, B.C., bearing the inscription, 'I hurl death to the traitor and extermination to the rebel;' words which would, however, equally apply to an ordinary fire-tube as to a piece of artillery.

larger guns, which were chiefly used in sieges to propel immense stone bullets, we find a number of light pieces brought into the field, some of which threw leaden balls, even smaller than those of the modern musket. Sometimes several of these diminutive cannon, which usually loaded at the breech, were fitted into one frame, armed with pikes, and protected by a screen, behind which the gunners could work in safety: or, again, a number of barrels were fixed in a sort of packsaddle, which was removed from the back of a mule to the ground when required for use.

It was probably owing to the difficulty of applying the breech-loading principle to large calibres—a difficulty still experienced—that the early artillerists had recourse to this system of mounting several tubes in one frame—a discarded system which, of late years, modest inventors have introduced to the public as an original emanation of their own genius.

The projectiles of early date almost equalled in variety the cannon from which they were propelled. Darts, arrows, and bolts—bullets of stone, iron, bronze, and lead—fireballs, cases of small shot and stones, bore testimony at once to the energy of the inventors, and the uncertainty in which they were plunged.

But, notwithstanding the care and ingenuity bestowed on the improvement of artillery, that arm exerted a very limited influence in war during the century subsequent to its invention. Neither precision nor force could be attained by engines, the crazy construction of which made it necessary to load them with the weakest powder, to cool them with

vinegar, and often to allow a lapse of hours between two successive discharges.

The employment of artillery in sieges acted at first altogether in favour of the defenders, whose fire destroyed the palisades and lighter works erected by the besiegers, while the stone bullets of those were splintered to pieces against the solid masonry, on which, in the words of an eye-witness, they fell like balls of snow. Hence the fire of the attack was pointed either directly against the gates, or so as to fall on the roofs within the walls; and, after a certain expenditure of ammunition, recourse was usually had to the more effective operations of mining and escalade.

It was soon, however, discovered, that if fortresses were to a great extent proof against the besiegers' cannon, they suffered severely from the recoil and shock of those which were planted on their walls. Hence arose the necessity of reducing in height and increasing in thickness the works of defence—a step of decided progress in the art of fortification.

Nothing proves the inefficiency of early artillery more clearly than the length of time which it required in order to supplant the more ancient engines of war. Of these the chief in use during the fourteenth and fifteenth century were the arbalest—a kind of exaggerated crossbow—and various machines, such as the trebuchet and petrara, acting by the counterpoise of weights, and furnished with slings, which hurled stones and other missiles to a considerable distance. Against such rude and primitive rivals were frequently pitted the cannon of the Middle Ages; and it must be confessed that the result was not invariably in their favor.

If the influence of artillery was somewhat doubtful in sieges, when favored by long preparation and uniform direction, how shall we estimate its early effects on the field of battle, where rapidity of movement and of action are the most imperious requirements? In the passage of rivers and the defence of mountain gorges, cannon were sometimes employed with success. But what great results could ensue from dragging into the open field a number of pieces which, remaining stationary during the engagement, often limited their services to one solitary discharge, and that one depending more or less on the willingness of the enemy to be enticed into the line of fire? How can we conceive any accuracy of aim, when we read that it was adjusted by roughly digging holes for the wheels or trail of the carriage? And, finally, how can we appreciate these costly and cumbrous accessories, when we find them, as was said of the ancient elephants, the trophies, but not the instruments, of victory?

To the hand-cannon, it was an easy transition from one of those small tubes, of which several have been described as mounted in a single frame; and accordingly a variety of such arms under the names of hand-culverins, hackbuts, and arquebuses successively appeared. In the field they were supported by a rest, and fired by a hand-match; but except as wall-pieces in sieges, their use was very restricted; and long after heavy artillery had banished the old war machines, the bow continued to assert its supremacy over every description of small arms.

From this sketch of the first application of gunpowder, as a projectile force in war, it will be seen

that its effects were neither so great nor so sudden as they have frequently been described: yet it cannot be denied that, almost simultaneously with the introduction of this new power, vital changes occurred in the military systems of Europe. How, then, did these changes originate?

The battle of Crecy forms a landmark in the history of war, not because a few crazy guns may have contributed their noise and smoke, rather to the excitement than to the result of the day; but because it published to the world the declaration by a proud chivalry of this great truth, which had lain by neglected and unheeded for ages—that infantry is the soul of armies and of battles.

The victories of the Flemish foot at Courtrai, and of the Swiss at Morgarten, were viewed as the result of accident, and produced no sensible effect on the military institutions of Europe. The lower orders, despised and trampled down, might behold in these triumphs the germs of future emancipation; but the nobles, defeated, yet self-satisfied, attributed their discomfiture, in the one case to the mountains, in the other to the marshes, without deigning to acknowledge as worthy foes the plebeian masses which they had so often driven like sheep before their lance points.

It was otherwise when at Crecy,—the English knights dismounted in order to join that glorious yeomanry with whom they had made one cause, and fought one battle at home. When this infantry, so calm, so united, so self-reliant, withstood unmoved, the fiery charges of the French horsemen, and finally drove them a shattered wreck from the field, then

was the sad conviction forced upon the great feudal lords, that their highly trained and splendidly equipped cavalry were no match for the solid and resolute bands which opposed them on foot.

To the battle of Crecy, then, may be traced a great revolution in the warfare of the Middle Ages, the appreciation of infantry and the consequent decline of feudalism. For although during upwards of a century the chief force employed in battle consisted of dismounted men at arms, yet the idea must soon have suggested itself, that destined ultimately to fight in serried ranks on foot, it became less essential to make them expert horsemen and skilled in single combat. Personal prowess yielded to well-combined action; and the repeated success of the Swiss pikemen over the Burgundian chivalry at Granson, Morat and Nanci, served to strengthen the opinion that a force of regular infantry, less costly and more easily subsisted than the men-at-arms, would also prove better adapted to the general purposes of war.

The knight and his squire gradually passed away, and with them the baronial castle; no longer proof against the iron shot of stronger and more perfect guns. The feudal system, leaving to the military student a long train of examples to avoid, gave way before the predominance of infantry, which, easily armed and organized, has always been the force of the people. The results of such a change must have been highly favorable to freedom and civilization, had they not been checked by the almost simultaneous establishment of standing armies.

If the European wars of the Middle Ages are but barren and unprofitable ground, we may, by turning

eastwards, explore a richer tract in the campaigns and institutions of Timour, who, arose in Central Asia towards the close of the fourteenth century, and shone forth as one of the greatest conquerors and most successful generals that the world had ever beheld.

Born to comparatively humble fortunes, irresistible obstacles seem to lie across the path of his almost boundless ambition. Yet one by one he overcame them; and having been reduced to so poor a following as seven half-starved soldiers, he lived to see himself the possessor of twenty-seven crowns, the commander of 800,000 fighting men, and lord of the vast expanse which lies between Moscow and Delhi, between the Bosphorus and the frozen regions of Siberia.

In the brief memoir of his life which Timour has left us, he says 'That he at all times thought there was nothing more worthy the valor of princes, than the conquering of kingdoms, and the waging of holy wars against infidels and unbelievers.'* His plans were deeply meditated; before embarking in an enterprise he examined the avenues of retreat, and he himself tells us that the principles of his tactics were uniform. It was his maxim that success came not from the greatness of armies, but from skilful and judicious measures. Liberal and free-handed as regards mere riches, he was too good a general to tolerate the idea of divided command. On this point he was inflexible—'Since God is one and hath no partner, so his vice-regent upon earth must be one

* Under this head he, as a Mahometan, included all Christians. Timour should have lived in the days of the Crusades.

only.' He sometimes humoured his lieutenants by consulting them, and if their advice pleased it was adopted. But if it in any way clashed with his own projects, he fell back on the infallible Koran, and never had a man such talent for happy omens. On a question of attacking a far superior force, the sacred volume spoke, 'How oft do the weak vanquish the powerful, by permission of the Almighty God;' or thus, 'O Prophet, fight with the unbelievers! Victory and conquest and triumph are thine;' whilst a voice, audible to himself alone, for ever declared, 'Truly thou art appointed the Lord's vice-regent upon earth.'

Shepherds and hunters mounted on light hardy horses, and wielding the javelin and the bow, followed the standards of Timour; and no one better appreciated this maxim which can never be violated with impunity—that the tactics and discipline of the army should be founded on the manners and customs of the people. In the individual soldiers he changed nothing. He cumbered them neither with defensive armour, nor unfamiliar weapons. He respected and even drew advantage from that untamed and adventurous spirit, which, regarding close restraint as insupportable, gave so large a scope to daring intelligence and prowess. It was only when his troops were assembled in numbers, that the discipline of Timour asserted its might. Then it was seen that while each individual soldier preserved a certain liberty of action, the whole army of perhaps 100,000 men was moved about with all the precision of a mathematical machine.

When Timour, in his earlier days, commanded only

a small body of horsemen, he generally divided them into seven bands, six of which were drawn up in two lines, while the seventh was held in reserve. But as his forces swelled in numbers, he abandoned this formation for one into tomans of a thousand strong, ranged in three lines, the last of which, comprising the veterans of the army, he commanded in person. His method of attack, however it might vary in application, was in principle always the same. Rapid and successive charges in échelon* from the centre, supported by strong and well-directed reserves, formed the basis of a system of cavalry tactics, which we owe to this great general, and which the experience of succeeding ages has been unable to improve.

A force of about 30,000 men was the favourite instrument of Timour, as it was also that with which Alexander, Hannibal, and Napoleon earned their brightest fame. When his army greatly exceeded this number, he distributed it into grand divisions—corresponding to the modern *corps d'armée*—of which he commanded one in person, while he entrusted the

* This word has a double military signification, sometimes the source of confusion. In great strategic operations it is applied to several divisions posted at convenient distances along the same line of march, and which then bear a close analogy to the rounds or échelons of a ladder. But, in tactics and field manœuvres, the same word denotes a formation of troops, in which the successive divisions are parallel to one another, while each, having its front clear of that in advance, can, by marching directly forward, form line upon it. A correct notion of Timour's favourite advance in échelon from his centre may be formed by making an imaginary section through such a double flight of steps as is often found at the entrance of an English country-house.

others, still under his own general control, to the care of his favourite chiefs. Thus, for the invasion of India, he directed one wing of 30,000 horsemen on Lahore, the other of equal strength upon Mooltan, whilst he himself led the army of the centre. On all occasions his march was preceded by clouds of flying scouts, who, piercing the country in every direction, kept him constantly informed as to its varied resources and the dispositions of the enemy.

His regular march was 24 miles a day, which he at times sustained for many months. He relied much on rapidity of movement, and often disconcerted his enemies by falling on them unawares, and cutting them up in detail. In his own words, 'He charged quick and hot on the foe,' and 'never let the plain of battle cool.' He at least had made, if not announced, the discovery since attributed to Marshal Saxe, 'that the secret of an army's success is in its legs.'

His rapid, impulsive genius shrank from the prospect of a regular siege, the slow and methodical details of which he held in the greatest horror. Failing to take a stronghold by stratagem or surprise, he preferred to pass it by rather than embark in a long and tedious undertaking, so little in accordance with the general character and scope of his campaigns.

In the conquest of India, Timour displayed all the vastness of his resources. The difficulties of the undertaking he thus summed up. 'But Hindostan hath many ramparts: 1st. The rivers; 2nd. The wilderness and the forests; 3rd. The soldiers clad in armour; 4th. The elephants, destroyers of men.'

Yet all these obstacles he surmounted, and could boast that within one year he had subdued the chief city of India, and returned in triumph to Samarcand. He subsisted his troops through the wilderness, by spreading their march over a vast extent of country. The elephants* proved an illusory danger, and the ponderous cuirassiers succumbed to the light and agile horsemen of the steppes. Their massive squadrons might break through the flexible Tartar line which eluded rather than withstood their charge; but perplexed by mazy evolutions, and exhausted in pursuit of feigned retreats, they finally sank from sheer distress, under rapidly renewed attacks—the strength of the hurricane was absorbed in the eddies of the whirlwind.

Although no general could draw greater advantage from a varied configuration of ground, or was more fertile in stratagems and expedients, yet as the tactics of Timour reposed on fixed principles, it is easy to generalize the chief features of his battles.

The army being drawn up in three lines of tomans or squadrons, the attack was usually opened by the two centre squadrons of the first line, which rapidly advanced to the charge, closely succeeded by the two squadrons which had stood on either side of them in line, and which now covered their flanks; these again were supported by the adjoining squadrons, and so on, until the whole of the first line was engaged. Each separate attack afforded a chance of victory,

* After this campaign Timour employed elephants, from which his engineers discharged Greek fire on the enemy.

while, as each was in a measure independent, its failure did not occasion any general rout.

The lightness of their horses and equipments, and their adherence to missile weapons, rendered the Tartars more apt to prevail by a series of harassing attacks, than by one or two decisive onslaughts: hence, after galling the enemy by their varied manœuvres and ceaseless flights of arrows, the foremost squadrons usually retreated by the flanks. But if the enemy either confidently attempted a pursuit, or even hoped for a respite to reform their shattered ranks, they were in either case assailed by the second line, which, advancing from its centre in a similar manner to the first, seldom failed to overcome the wearied and dispirited foe.

If disorder appeared at any point of the Tartar lines, Timour, who watched over the field from a commanding post, dispatched instant succour; but if the whole front either wavered or recoiled, then the occasion was worthy of the general himself. In his own words, 'The time was come to put the foot of courage into the stirrup of patience;' and placing himself at the head of his reserves, he charged into the thickest of the fight. This appearance of Timour in person never failed to turn the doubtful balance. The fiery courage of the soldier prevailed, when the deeply-studied plans of the general might have miscarried.

His victory over, the Emperor Bajazet at the battle of Angora, in 1402, filled the measure of Timour's greatness. Then might he well assert, that 'He sat upon the throne of war, and the princes of the earth rendered him homage.' His vast conquests rise far

above the desolating inroads of ordinary pastoral chiefs. They were due, not to the mere pressure of countless hordes, but to the excellence of a system and the signal genius of a commander.

We have seen the feudal system give way before the predominance of infantry, an improved artillery, and the establishment of standing armies. To Charles VII. of France is due the credit of this last measure; and a description of the force which he regularly organized and administered, will serve to connect two periods, and to set in their proper light the military resources of his age.

Charles VII., surnamed the Victorious, from his great successes over the English, has received but scanty justice from historians; yet the rapid rise of France from a state of abject dependence to one of towering strength, may be attributed in a great measure to his sagacity and foresight.

Having seen his kingdom descending to the level of a province, he resolved to guard against the recurrence of such a danger by a more solid organization of the national forces. The cavalry first occupied his thoughts, and in the year 1445, he formed fifteen companies of 100 lances each: the lance, as in the days of chivalry, being the chief of a little band of mounted archers, pages and attendants, which Charles, as a measure of economy, reduced to six. This gave to each company a strength of 600 combatants, exclusive of the volunteers and aspirants, who, like the Roman Velites, attached themselves to the regular force in the hope of being one day admitted within its ranks.

Three years after this formation of cavalry into what were known as the companies of ordinance,

Charles created a body of infantry, called Franc-Archers, on account of their exemption from taxes. They were levied by parishes, and divided into battalions of 500 men, armed with pikes and bows: for although hand-cannon had been adopted in the fourteenth century, they were but slightly esteemed, except for the defence of towns, on account of the great delay in loading them; it being calculated that they could only effect one, while the cross-bow could make two, and the long-bow six, discharges.

To this force, regularly paid and subsisted, of 9,000 cavalry and about 16,000 foot, Charles joined an artillery, which had proved its power against the English by rapidly reducing their strongholds, and by striking down some of their most adventurous chiefs. Indeed the French artillery, fostered and improved by the brothers Bureau, began about this time to be distinguished by the superior weight and accuracy of its fire. Guns of stronger construction, capable of projecting iron shot at high velocities, had replaced the crazy pieces of the fourteenth century, and formed not the least important part of an army, on which Charles VII. relied, according to his own pregnant words, 'for waging war without the assistance of any other of his subjects.'

A centralized military power was too attractive not to excite at once the ambition of other monarchs. Standing armies became general throughout the Continent; and whatever may have been their influence on the happiness and civilization of mankind, their effect on military science was so marked, that we must regard them as inaugurating a period of rapid progress and improvement.

# CHAPTER III.

Early standing armies of France—The Arrière ban—Camps of Instruction—Swiss mercenaries—Isabella of Castille raises the character of the Spanish Armies—The Field Hospitals—Gunpowder mines employed by her Engineers—Gonsalvo de Cordova—Charles the Eighth of France—His formidable Artillery—Gonsalvo expels the French from Southern Italy—His great Campaign of 1503—The battle of Cerignola brings intrenchments into repute—The Garigliano—Light Cavalry begins to supplant the Gendarmerie—Increased proportion of Fire-arms—Improvements in Fire-arms and consequent changes in Fortification—Bastions and Outworks gradually introduced—Petards, Red-hot Shot, and explosive Shells employed—Maurice of Nassau.

THE formation of a regular standing army, by freeing Charles from a precarious dependence on his nobles, enabled him to devote his whole energies towards improving the discipline, tactics and equipment of the forces which he had raised. Of such improvement they stood sadly in need; for although the feudal spirit had fled, its traces might yet be discerned in these new levies, of which, indeed, the flower was merely organized chivalry.

Hermetically sealed men-at-arms, wielding the ponderous lance, still constituted the strength of the cavalry; and, as individual horsemen, were perhaps the most formidable that the world had ever beheld. The use of saddle-bows and stirrups raised them far above the ancients, to whom these aids were unknown,

and although the armament of the lance for heavy cavalry is contrary to modern practice, it has been advocated by a great show of reason with many of the ablest soldiers and military writers.

It was then not so much in their material as in its arrangement that the French companies of ordinance or gendarmerie were defective. Knights, pages, varlets, and archers, each capable of performing good work in their own sphere, cramped and neutralized one another when massed together. At the commencement of an action the lances ranged themselves in front, so that no one knight should be as a shield to another, and if their first charge proved successful, their lighter armed followers might complete the work of destruction; but in the event of a check or reverse, it was impossible to rally these heterogeneous bands which engaged without that essence of cavalry success—so well appreciated by Timour—a regular system of supports and reserves. Yet such is the power of discipline and order, that notwithstanding their vicious formation, the French gendarmerie asserted a decided superiority over the cavalry of other nations. Their impetuous fury, inspiring terror into their enemies, bore down all opposition, and for many years they appeared on the battle fields of Europe a conquering and almost irresistible force.

If to this formidable cavalry and their excellent artillery, the French had been able to join a good national infantry, they might singly have defied the levies of combined Europe; but in this, the most important branch of an army, they were as far below the level of the day as in other respects they were above it. The English bowmen, the Swiss pikemen, the

Flemish, German, and Spanish foot, could each point with pride to their fields of glory; but we may vainly ransack the annals of centuries in order to discover one battle in which the French infantry bore a distinguished, or even a respectable part. Nor is it difficult to account for their absolute nullity. France was the stronghold of chivalry and feudal oppression; her nobles utterly scorned the plebeian foot soldiers, whom they scarcely deigned to reckon, and whom, as at Courtrai, they did not hesitate to ride down in the perhaps groundless fear of their sharing the honors of the day. It is true, that after the disasters of Crecy and Poictiers, the French kings strove to improve their infantry by ordering archery and warlike exercises to be generally practised throughout the country. But the jealousy of the nobles was soon aroused; they interposed to forbid this strengthening of the people; the wholesome edicts were revoked, and France remained the victim of her own tyranny, denying herself a national army from a dread of popular retribution.

It may naturally suggest itself that the establishment of the Franc Archers must have put an end to this inferiority of the French infantry. But although the forms and regulations of that force deserved approval, where was to be found the necessary material—the stalwart yeomanry to fill its ranks? The monarch might sign warrants and edicts; but the regeneration of a people is not achieved by the stroke of a pen. The lower classes of France had been trampled down and oppressed until their spirit was completely broken—they were quite destitute of that firmness and self-reliance so essential to the good infantry soldier. The Franc Archers never appeared

to advantage in the field, and they were disbanded by the successor of the prince who had called them into existence.

That part of the nobility which was not enrolled in the companies of ordnance formed with their followers a reserve militia, under the name of 'Arrière-ban,' which does not appear to have been highly esteemed. Lanoue in speaking of them says, 'They are great eaters. Some style themselves men-at-arms, others archers; but few are soldiers;' an opinion probably shared by the kings of France, for this force was rarely called out, although it continued to exist in name until the reign of Louis XIV.

Of the troops which Louis XI. substituted for the Franc Archers, and which, with his gendarmerie, he constantly exercised in camps of instruction, a large portion consisted of Swiss pikemen. These mountaineers had acquired a brilliant reputation in their wars with the Burgundians, and occupied the first rank among the infantry of Europe. In their arms and formation they much resembled the Greek phalangites—a resemblance due rather to a similarity of circumstances, than to any studied imitation on their part.

All writers are agreed in giving to the Swiss the highest character for sobriety, discipline and firmness. Pulgar thus describes them: 'These men were bold of heart, and fought on foot. As they were resolved never to turn their backs upon the enemy, they wore no defensive armour except in front, by which means they were less encumbered in fight. They made a trade in war, letting themselves out as mercenaries; but they espoused only a just cause, for they were

devout and loyal Christians, and above all things, abhorred rapine as a great sin.' This testimony is supported by Dubos, in contrasting them with the German landsknechts, who soon began to compete against them in the soldier markets of Europe. 'The Germans had a better appearance under arms than the Swiss, but they were incapable of discipline. They differed from the Swiss in being without obedience to their chiefs, and without friendship for their comrades.' So highly prized indeed were the Swiss by the martial princes of Europe, that they rarely took the field without a band of these mercenaries, whom they regarded as the hope and rallying point of their armies.

As the Swiss infantry was scattered over the face of Europe, fighting under different leaders, and grafted on various national armies, it would be difficult to give any one precise picture of their organization which would equally apply to all cases. It may however be generally stated that they were armed with a long pike, and fought in dense masses from 3000 to 8000 strong. On the flanks of these solid bands were the arquebusiers, of which the Swiss had a small proportion in their ranks. The masses were usually drawn up in échelon, so that each afforded to the other a certain amount of protection and support. Skirmishers warded off the desultory charges of light troops. Of cavalry they stood in no fear; and the artillery of the day was too slow in its action to cause them much annoyance, as after braving one discharge they generally made themselves masters of the enemy's pieces. Sentence of death was pronounced against those who quitted the ranks. Absolute silence was

ordained. A calm endurance asserted its empire over the headlong and impetuous dash of chivalry.

While the agents and appliances of warfare were thus improved, a general was being formed in the rude school of the Moorish wars, capable of wielding these new means at his pleasure, and of impressing the stamp of his genius not only on the Spanish armies which he commanded, but on the military character of the age in which he lived.

Gonsalvo de Cordova, surnamed the Great Captain, served his apprenticeship in the armies of Isabella, which finally wrested from the infidels the last remnant of their conquests in Spain: and it is difficult to conceive a school better adapted to form the character of a soldier, or to develope the inborn qualities of a general.

Isabella of Castille, in the great struggle which has made her famous, neglected no aid or precaution which could add strength to her armies, or increase their efficiency in the field. Fighting side by side in her ranks might be seen the solid Swiss and German pikemen, the dexterous English archers, the crafty gunners and engineers of Italy, the Ginetes, formed on the model of the Moorish horse, and expert in the wild tactics of Guerilla warfare. Whatever was vicious in her own system she discarded—whatever was commendable in her adversaries or allies, she seized upon and made her own.

Acting upon such principles at a time when there was much of novel and good, but little of systematic in the different European armies, it is not surprising that Isabella should have outstripped her contemporaries in the quality of her troops, and yet more in

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the scientific excellence of their organization. It is to her campaigns that we must turn for a well-regulated system of depôts and supplies; in her camps that we first behold field hospitals, fitted with every appliance that humanity could devise for the preservation of her cherished soldiers; by her engineers, gunpowder was successfully applied to the explosion of mines;* before her powerful batteries crumbled away the vaunted strongholds of the Moor; and under her eye was formed that matchless Spanish infantry, which for upwards of a century spread terror throughout the length and breadth of Christendom.

Her selection of Gonsalvo to command her Italian army rivals in happiness that of Wolfe by Chatham, and of Napoleon by the French Directory; in each case a young and comparatively obscure soldier was preferred over the heads of more experienced men, and in each case the choice was fully justified.

In his first campaigns Gonsalvo found himself unable to cope with the French in the field of battle: his troops being not only far inferior in numbers, but having, like the ancient Romans, sacrificed to a greater mobility some portion of their material strength.

On a level plain, his infantry armed with a cut-and-thrust sword, was scarcely equal to the solid masses of Swiss pikemen; and his light armed Ginetes were

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* At the siege of Malaga, in 1487. The almost simultaneous employment of gunpowder mines by the Genoese, at the siege of Serezanello, in the same year, would seem to point to a common origin of earlier date, the honours of which have been claimed for an Italian architect, Franciso Giorgio.

swept away before the headlong charge of the French gendarmerie. It is true that like the shepherd hordes of Timour, or the Moorish squadrons from which their own organization was copied, the Ginetes might have worn out their ponderous adversaries by mazy evolutions and simulated flight. But these manœuvres were deemed so equivocal by their allies, that at Seminara, the only battle ever lost by Gonsalvo, the Calabrians, on the first feigned retreat, believing themselves deserted, broke and fled from the field.

It is not, therefore, in pitched battles, that we must seek during his early career, for instances of Gonsalvo's genius; but rather in those minor operations of war, so often overlooked for more showy but less telling achievements, in the rapid march, the surprise, the unexpected relief, for which were equally suited his pliant manœuvring army and his own subtle and penetrating mind.

Notwithstanding the weakness of his troops, the scanty supplies received from Spain, and the dubious character of the allies with whom he was forced to co-operate, Gonsalvo, in little more than a year, cleared the Neapolitan territory of its French invaders, supported as they were by the first mercenary infantry of the day, their own matchless gendarmerie, and the finest train of artillery* that the world had ever beheld.

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* Formidable as was the train of artillery with which Charles VIII. invaded Italy, its numbers have been greatly exaggerated by writers, who confound with the field-pieces, not only the hand-guns, but even the pioneers of his army. According to the most reliable authorities, his artillery comprised about 140 pieces

The most noticeable features of this war, in which Gonsalvo earned his title of 'The Great Captain,' were the forced march and surprise of Laino, and the siege of Taranto, where, repeating the device of Hannibal, of Cæsar, and Mahomet II., he transported part of his fleet by land, and thus gaining access to an unprotected part of the town, he speedily effected its reduction.

While Gonsalvo, at the head of a small but devoted army, was gradually wresting Southern Italy from the grasp of the French, he effected a most important change in the armament of his infantry by mixing the long Swiss pike, in the proportion of one-third, with the cut-and-thrust sword of Spain. This plan is highly praised by cotemporary writers, and considered preferable to that adopted by Pyrrhus, of ranging Tarentine bands, armed after the Roman fashion, alternately with those of his phalanx: as the front of each battalion presented a sufficient number of pikes to the first charges of the enemy, while the terrible in-fighting of the Spanish swordsmen prevailed in hand-to-hand conflict.

Great as were the early successes of Gonsalvo in Italy, it is on his last and most brilliant campaign that repose his claims to be numbered in the foremost rank of generals; and assuredly those claims are well founded if, forgetting for a while the restricted field of his operations, we contrast the great

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of brass ordnance, of which 40, supposed to have been transported by sea, were of large calibre. They all were mounted on strong wooden carriages, threw iron shot, and were served with admirable precision.

things which he effected with his scanty and insignificant resources.

In the spring of 1503, Gonsalvo found himself cooped up in the fortress of Barletta, where, surrounded by enemies, and cut off from all reasonable hope of succour, his prospects were of the gloomiest kind; yet before the expiration of one year, he had burst from his old den, as Barletta was familiarly called; surprised, and captured the stronghold of Ruvo; routed the French on the decisive fields of Cerignola and the Garigliano, and for a second time driven them, humbled and disgraced, from Neapolitan soil.

In many successful sieges, Gonsalvo was deeply indebted to the superior skill of his engineers, and notably to Piedro Navarro, who carried to a very high perfection the art of applying gunpowder to mines; but in the open country he could only rely on his own fertile genius, and on those veterans who, in serving with him, seemed to have imbibed some portion of his own stern energy and unyielding spirit.

At Cerignola, which was fought near the more famous but not more important field of Cannæ, Gonsalvo, in order to cover his front, took advantage of an old trench, which he widened and planted with stakes. He ranged his cannon along this defence, which he also lined with arquebusiers. The German auxiliaries formed the centre, and the Spanish veterans the flanks of his regular infantry; the heavy cavalry were drawn up behind different openings, prepared to sally at the favourable moment, and the whole of these dispositions were masked by clouds of light-horse skirmishing beyond the lines.

The French army, which, like that opposed to it numbered about 7,000 men, was ranged in three battles, or grand divisions: the men-at-arms being on the right, which was most advanced, the infantry in the centre, and the light cavalry on the left. They advanced to the attack with their usual impetuosity, not even waiting to reconnoitre the ground, and first became aware of the existence of the trench by their gendarmerie being brought to a standstill on its brink. This unexpected obstacle sufficed to check the ardour, the 'furia Francese,' as it was called, of the men-at-arms, who, wandering about in search of an opening, were exposed to a galling flank fire. Nemours, who commanded in chief, was shot down, and the whole mass appeared plunged into hopeless confusion. At this critical moment, Gonsalvo ordered a general attack along the line. The disorder of the French was rapidly converted into a rout. One-half of their army remained on the field of battle, and the remnant which escaped was too shattered ever again to appear as an organized force.

This battle afforded an instance of the advantage that might be drawn from earthworks—accessories which, having fallen into disuse, now grew so much in favour, as to be often employed to a pernicious excess. The Spanish artillery was early reduced to silence by the explosion of the principal magazines; but the arquebusiers played a more important part than had hitherto fallen to their lot, and by their well sustained fire, contributed in no slight degree to the brilliant results of the day.

Towards the close of this eventful year, Gonsalvo was called upon to cover Naples from the threatened

attack of a powerful French army, which, under the command of Mantua, was marching upon it from the Roman States. All the forces which he could collect were unequal to cope with the French in the open country, and his only chance of successful resistance lay in the occupation of some strong position across the enemy's route, where, by delaying their advance, he would allow their enthusiasm to cool, and bring into play the more patient and enduring qualities of the Spanish soldier.

Such a position he found on the banks of the Garigliano, a deep stream, which after winding through a marshy and pestilential district, throws itself into the gulf of Gaeta, about fifty miles above Naples.

Having intrenched himself on the southern bank, Gonsalvo awaited the approach of the French, who, forcing the passage under cover of their powerful artillery, threw across a bridge of boats, which they secured on the Spanish side by a redoubt. But finding the swampy ground beyond too deep for the manœuvres of their guns and cavalry,* in which their

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* Besides their iron gendarmerie, the French had in their pay a number of Albanian light horse, which, under the name of Stradiots, acquired some reputation as skirmishers. They wore light helmets and coats of mail, and were armed with the mace, sword, and lance. In cutting off supplies and harassing the enemy they were indefatigable, and hence have been called the Cossacks of the sixteenth century; but in battle they were less resolute than the Spanish Ginetes. Commines says, 'These Stradiots were very much terrified by artillery; for the discharge of a falconet having killed one of their horses, they precipitately retired, not being accustomed to that sort of thing.' Under

chief strength consisted, they satisfied themselves with throwing a garrison into the redoubt, and retired to the opposite bank.

It was now evident that final success awaited that army which could best endure the rigours and hardships of the situation; and for this object the respective qualities were most unequally balanced. The French, as they do to this day,* retained the character attributed to the ancient Gauls—eager and impetuous at the commencement of an enterprise, but easily disheartened by failure or delay.

Although on this occasion they occupied the more favourable ground, their restless spirit could ill brook the restraint of a severe, yet monotonous winter campaign. Murmurs of discontent arose on all sides, mutiny and insubordination seemed imminent, if they did not actually exist, and Mantua, weary of his nominal authority, threw up the command in disgust.

It was far otherwise with the Spaniards, whose faith in Gonsalvo was unbounded, and partook in some measure of his own unruffled serenity. They looked upon the disease and privations to which they were daily exposed as so many sacrifices to an ultimate

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Francis I., they began to prefer fire-arms to the lance, thus following the example, without fulfilling the object of the mounted arquebusiers, who, destined, like the more modern dragoons, to fight chiefly on foot, are also first mentioned during these early Italian wars.

* Napoleon has said, 'The French will fight in whatever position they may be attacked, but they cannot retreat before a victorious army. If they experience the least check they lose all presence of mind and discipline; they slip, as it were, through your fingers.'

success, of which they never for a moment allowed themselves to doubt.

At length such constancy was rewarded. Gonsalvo, who had shared the meanest duties of the camp, judged that the time for striking home had arrived. Stealthily throwing a bridge across the river, about four miles above the French head-quarters, he fell in the dead of night upon their scattered forces, which, demoralized and out of heart, offered scarcely a shadow of resistance. The panic and disorder were still further increased by his general, Andrada, who, forcing the old bridge at the head of a chosen body, fell on the French centre, and effectually destroyed all hopes of their being able to rally.

The retreating and disorganized masses were hotly pursued by Gonsalvo's cavalry, and were only saved from utter annihilation by the conspicuous gallantry of such knights as Bayard, Sandricaut, and Lafayette, who making a fresh stand at every stream and hillock, headed the rear-guard in repelling the furious charges of the Spanish Ginetes. At length the terror-stricken throng found a refuge within the walls of Gaeta, which surrendering shortly afterwards, as if in dread of the very name of Gonsalvo, left that great general for a second time the undisputed conqueror of Southern Italy.

Among the companions and disciples of Gonsalvo were many who lived to earn renown on a wider field than had been accorded to their great master. Yet neither they, nor Alva, perhaps the most eminent of their school, nor even Henry, Coligny, nor Maurice of Nassau, though shedding lustre on the century which Gonsalvo had so brilliantly inaugurated, could

rival his powers of rapid and scientific combination, or his calm unshaken energy of purpose. For a long period, the slow and hesitating steps of military art must be traced rather in improved method, material, and detail, than in the bold and vigorous conceptions of original genius.

As the proportion of fire-arms increased, and defensive armour became less esteemed, the old gendarmerie began to suffer by contrast with the lighter and more active bands of cavalry, which, springing up in different parts of Europe, allured many of the aristocracy to their ranks by an easier and less expensive service; and were often preferred, as more fitting instruments, by the adventurous leaders of the sixteenth century.

Mention has already been made of the Spanish Ginetes and the Greek Stradiots, who gained some reputation in the Italian wars, and may be considered as the forerunners of the various bands of Reuters, Carabins, and Argoulets, all of which, however, impaired their efficiency by an unhappy preference of fire-arms to their more legitimate weapons, the sword and lance. With these must not be confounded the dragoons, or mounted arquebusiers, who were in reality infantry soldiers, mounted in order to accelerate their movements, and enable them to outstrip the enemy in seizing an important defile or post, which, as they were furnished with intrenching tools, they could fortify and defend. A somewhat similar force is at present to be found in the Cape Mounted Rifles, whose organization may be more generally adopted*

* Napoleon held this nature of force in high esteem. At how

in these days, when the increased range of projectiles and consequently increased scope of field operations, invest with a double value troops combining accuracy of fire with rapidity of movement.

From the single line at which the old men-at-arms were wont to engage, the new cavalry fell into the opposite extreme of a deep formation on several ranks, the rearmost of which restricted themselves during the charge to the occupation of riding down their more advanced companions.

In this great depth of formation we may trace the desire for a constant succession of discharges, which was obtained by the foremost horsemen passing to the rear, in order to reload after firing their pieces, thus leaving the front clear to the succeeding rank. This device was, doubtless, considered a masterpiece of tactics, as was also that of making the mounted arquebusiers fire over the heads of the infantry; yet both were occasionally set at nought by the fiery instinct of the Reuters, who, disdaining such refinements, charged sword in hand into the thick of the stationary foe, and rarely failed to sweep them from the field.

Francis I. attempted to improve his national infantry by assimilating its organization in some degree to that of the Roman legion. His battalions, each a thousand strong, of which six formed a complete legion, contained about equal proportions of halberdiers, arquebusiers, and pikemen. But the way-

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small a cost might our yeomanry be modelled on this system, so admirably adapted to bold, irregular troops and an intersected country.

ward and desultory spirit of the French has always rendered them impatient of an exact discipline and solid formation; and after a brief existence, the new order was abandoned for one looser and easier, and more in harmony with the temper and genius of the nation.

During the sixteenth century the proportion of fire-arms was greatly increased, more especially by the Duke of Alva, on taking command of the Low Countries in 1567. This change tended still further to raise the reputation of the Spanish infantry, and must be attributed to the improvements which had taken place in the manufacture of small arms.

The first rude culverins, fired by applying a lighted match with the hand, had been replaced by match-locks of very simple construction; which, in their turn, gave way to the pyrites wheel lock, producing ignition by the friction of iron pyrites and steel. Although the rest, with its projecting spike, was still in general use, calivers were made sufficiently light to be discharged from the shoulder without this aid. The value of these improved weapons was greatly increased by the superior strength of the powder with which they were charged, and which bore little resemblance to the poor weak stuff of an earlier date, scarcely worthy of being made into squibs.

It was, however, in the domain of fortifications, where its destructive effects had been most sensibly felt, that gunpowder also worked the most important revolutions. It was soon found that the lofty masonry walls of the middle ages were incompatible with the employment of cannon, whether in the attack or defence. On the one hand, they offered a large

mark and a very slight resistance to the besiegers' shot; and, on the other, they were too narrow to permit the working, and too weak to withstand the concussion, of the guns which were mounted upon them.

To meet these difficulties, walls were much reduced in height, and a considerable space behind them was filled in by earthen terraces, which were distinguished from the ancient parapets by the name of terre-pleins, and effected the double object of opposing greater stability to the artillery of the besiegers, and giving freer scope to that of the defence.

However, as the precision and force of artillery fire increased, it was perceived that stone walls, even of great thickness, afforded a very doubtful and insufficient protection. They were breached more or less by each shot that took effect, and the splinters of masonry, flying about in all directions, proved a constant source of danger to the besieged. Hence came the substitution of earthen parapets for those of stone, and as they occupied a much larger space, which, together with that required for the terre-pleins, would have choked up the ancient towers, these were swept away, and replaced by larger and more open flank defences.

At first these flanking works retained the square or circular shape, common to the old towers, but the rapid progress in the art of mining, the use of petards, and the frequent success of escalades, directed against the lowered walls, made it imperative for the security of the besieged, that every part of their fortifications should be seen and commanded from some other part, so that no dead point should exist, at which the miner might pursue his work, the petard be attached,

or the scaling ladder planted without fear of molestation. As Machicouli galleries had disappeared with the lofty walls which they protected, this requirement could only be supplied by an altered trace of works, since the foremost part of a square or circular projection could not, under ordinary circumstances, be adequately flanked. Hence the introduction of bastions, the parentage of which has been disputed by many, although, like other so-called inventions, they were probably the result of a gradual and almost imperceptible progress, which even now does not appear to have reached its utmost limits.

So far, great advances had been made in the art of fortification, and that balance between the attack and defence which had been so rudely disturbed by the employment of gunpowder against works only constructed to resist the feeble enginery of the middle ages, was to a certain extent restored. But much yet remained to be done. The walls were still liable to be battered at a distance by guns which, sunk in the ground, and covered by low earthworks, could maintain a shattering fire without fear of retaliation.

It was to obviate this danger that a comprehensive system of outworks was gradually adopted. The gates and most vulnerable points were masked by ravelins or half-moons, as they were called, from their semicircular shape; the broad sloping glacis, raised beyond the ditch, shielded the masonry of the defence from distant batteries; and the covered way, bearing the same relation to the glacis as did the terre-plein to the parapet, kept up a perfect outward communication, sheltered the advanced firing parties, and afforded a protection and safe retreat to sorties, which,

on a moderate scale, were often employed with success.

By these multiplied contrivances the advance of the besiegers was both retarded and imperilled. Their distant batteries became powerless; their approaches, carried on under a concentrated fire from the glacis and outworks, were liable at any moment to be demolished by a well directed sally, and they were compelled, at a vast expense of labor and blood, to fight their way foot by foot to the edge of the ditch, in order there to establish their first breaching batteries.

The method pursued in attacking these formidable works is typified by an anecdote, or perhaps a fable, which has been indifferently related of several Eastern potentates, but of which the following is the most current version:—A son of the Grand Vizier, being engaged in the celebrated siege of Candia, sent a messenger to his father, to seek advice as to how he might best overcome the great and apparently hopeless difficulties which obstructed his success.

The vizier, who was seated in the centre of the carpet, at the edge of which stood the messenger, commanded the latter to approach, but carefully to avoid treading on the carpet. While the messenger, stood puzzled and hesitating, at a signal two slaves rolled up the carpet before his feet, and he was thus enabled to approach the vizier, who bade him return to Candia, and relate what had passed.

The son, rightly interpreting this allegory, instead of continuing his works on the surface, sunk them deep in the ground, which he gradually rolled up like a carpet toward the fortress, of which by these means he finally made himself master.

Without implicitly relying on this anecdote, it has been preserved because it foreshadows the system of parallels, while it forcibly illustrates that great principle which should guide a besieging army, and which, in these days of long range and precision, it would be well to bear in mind. Never to appear on the surface of the soil, but to work mole-like under its shelter, such was the spirit of the vizier's advice; such has been, and such is the spirit of every well regulated system of attack.

In pursuance of this plan, the besiegers having, when practicable, invested a fortress, selected one or more points of attack, on which they advanced by zigzag trenches deeply sunk into the ground, and protected to a great extent by the nature of their construction from the fire of the place. As these zigzags were carried forward, they were gradually shortened, with the double object of diminishing the quantity of work to be performed in proximity of the enemy, and of not obstructing the batteries of the besiegers, which were usually enclosed in detached field forts, from whence they kept up a direct, but not very destructive cannonade against the guns and defences of the place.

It naturally resulted from such dispositions that the besieged were able to concentrate on the narrow heads of the zigzag trenches a fire from front and flank, which it was almost impossible for the working parties to withstand, more especially as they were constantly liable to be surprised by sorties formed under cover, and protected by the fire of the glacis.

The small number of musketeers which the zigzags could contain was quite unequal to cope with these

sallying parties, who generally carried all before them until checked by the arrival of the reserve trench guards from the rear. But as this force, owing to the crowded state of the narrow trenches, was obliged to advance across the open, it was exposed to the combined fire of the sallying party and the troops which lined the outworks, so that it seldom accomplished its object of regaining and clearing the trenches without an extremely heavy loss.

In order to diminish these disadvantages, small places of arms, called boyaux, were constructed in prolongation of the zigzags, and being lined with musketeers, served in some degree to re-establish the balance in the advanced trenches. But this device, which is attributed to Montluc, and has been continued as an accessory to our day, was felt to be a palliative rather than a remedy, and the besieged, by skilfully choosing the time and place for their attack, were still generally able to overwhelm the working parties and advanced trench guards of the besiegers.

The art of explosive mining, applied so successfully in the attack of places by Piedro Navarro, had not only been further developed, but was now resorted to by the defenders, so that besides the conflict above ground, one neither less determined nor less deadly was frequently raging underneath. The loss of life, which had been small in the sieges of antiquity and of the middle ages, was immeasurably increased, and all the most able leaders of Europe turned their attention towards what was rapidly becoming perhaps the most important branch of military science.

It is for this reason that so many improvements, both in the attack and defence of places, can be traced

to great men, who might be supposed, judging from the conduct of later generals, though certainly not from those of antiquity, to have been raised by their position far above the study of petty siege details. The petard, a bell-shaped vessel filled with powder, was first employed by Henry IV., to blow open the gates at the surprise of Cahors; Etienne Battory, King of Poland, is said to have first used red hot shot in the year 1575, thirteen years before Wachtendœnck was destroyed by explosive shells ;* and Maurice of Nassau chiefly owes his reputation to his improvements in the system of out-works, and his skilful conduct of siege operations.

But notwithstanding the efforts of these and many other soldiers of the sixteenth and early part of the seventeenth century, the old relations which had existed almost from time immemorial between the attack and defence were again restored, after a brief transition period, during which novel means of destruction had been brought to bear upon an antiquated system of fortification. For no sooner had this

* The merit of first recognising the value of explosive shells in Europe is claimed for Henry VIII. of England, who felt the deepest interest in artillery matters, and was in the habit of personally superintending experiments. 'One Peter Baud, a Frenchman born, and another alien, called Peter von Collen, a gunsmith, both the king's feed-men, conferring together, devised and caused to be made certain mortar-pieces, being at the mouth from eleven inches unto nineteen inches wide, for the use whereof they [also] caused to be made certain hollow shot of cast iron, to be stuffed with firework or wildfire, whereof the bigger sort for the same had screws of iron to receive a match to carry fire kindled, that the firework might be set on fire for to break in pieces the same hollow shot, whereof the smallest piece hitting any man would kill or spoil him.'—*Stowe's Chronicle.*

system accommodated itself to the general use of gunpowder, than the same superiority of the defence which had appeared at Tyre, Platea, and Syracuse, was reflected in the brilliant resistance of Rhodes, Anvers, and Candia. At the siege of the latter place, in which the Turks were engaged during three years, the defenders, under the command of Moriscin, a Venetian nobleman, repulsed 50 assaults, and by their countermines destroyed the mines of the besiegers 500 times; while the loss sustained by the Turks, who were finally successful, has been estimated at no less than 100,000 men.

It resulted from the stubborn resistance thus offered by even the most insignificant fortresses, that the whole system of warfare was dominated by and made subservient to, the attack and defence of places. Fortifications and intrenchments were multiplied, and elaborated to a pernicious extent; and the campaigns of even the ablest generals became cramped, and often reduced to mere petty wars of posts and sieges.

In despite of the fetters thus imposed upon great and original conceptions, a certain gradual but steady progress might be observed in many branches of the art. The administrative and subsidiary departments of the army were subjected to a simple organization, by Sully in France, and by Essex in England. The increased proportion of firearms borne by infantry, which from a third under Francis the First, had risen to one half under Alva, and even higher at the opening of the seventeenth century, gave an importance to the natural features of the scene of war, which they had never previously possessed. Villages,

woods and hillocks were fiercely disputed, as forming so many pivots and points of support, from which the enemy might advantageously be either assailed or repulsed.

Generals were thus led to accommodate their order of battle rather to the configuration of the ground which they proposed to occupy, than to any fixed and formal rules. Greater variety and liberty of action were displayed; manœuvres in presence of the enemy, requiring a high degree of mobility, became more frequent; and the principle established by Hamilcar, but often since neglected, that the march of an army should harmonize with its order of battle, was recognised and acted upon by the most eminent leaders. As a disciplinarian and tactician, Maurice of Nassau, who was appointed to command the Dutch forces towards the close of the sixteenth century, perhaps effected more than any of his predecessors.

His camp soon became a school where congregated all the Protestants of Europe who desired to study the art of war, as in that of his opponent Spinola might be found assembled many Catholics. Thus it appeared as if the whole Christian world had agreed to meet on the narrow territory of the Low Countries, there to array themselves in battle and settle their disputes.

Maurice may have been indebted for some of his reforms to this great concourse of soldiers, bringing with them and contrasting the experience of different countries, and the principles of different chiefs. It is certain that, if we except his improved system of outworks, the changes which he effected do not establish any great claim to originality.

He restored camps of exercise, which had fallen into disuse since their revival by Louis XI. He strengthened the discipline of his troops, and subjected them to daily drills. He improved the method of forming and defending intrenched positions; and regulated more strictly the size and number of his subdivisions and their position in line. But he retained the deep formation in ten ranks, and did nothing to increase the flexibility of his battalions; his heavy cavalry, which, in common with that of other countries, had abandoned the lance and adopted fire-arms, was seldom judiciously employed; and his manœuvres and marches were neither simpler nor more rapid than those of Henry and Coligny, whose little armies had been known to traverse a space of fifty miles in twenty-four hours.

In short, whilst he excelled in the warfare of posts and positions, in which his experience was chiefly gained, he seems seldom to have risen beyond the study of details. He was a strict disciplinarian, an excellent engineer and a successful commander; but to place Maurice of Nassau in the foremost rank of generals, is to overshadow the fame of those great men who succeeded him, and who never failed to acknowledge how much they were indebted to his useful improvements and reforms.

# CHAPTER IV.

The Thirty-years War—Gustavus Adolphus—He lands in Pomerania—His Winter Campaign—Excellence of his Communications—The Battle of Leipzig—Errors of Tilly—Organization of the Swedish Army—Its great Mobility—Disadvantage of Mixing Bodies of Horse and Foot—Light Field Artillery of Gustavus—Total Defeat of the Imperialists—Gustavus overruns Germany, crosses the Rhine and the Danube—Wallenstein—Operations before Nuremburg—Victory and Death of Gustavus—The English Civil Wars—The New Model Army of the Parliamentarians—Its Division into Brigades, Regiments, Troops, and Companies—Its Administration and Staff—Battle of Naseby—Judicious Manœuvres and Dispositions of Fairfax—Critical Situation of the Parliamentary Army—Cromwell, by his flank charge, decides the issue of the day—Analogy between the Battle of Leipzig and Naseby—Energy of Cromwell—His Superiority as a Cavalry Leader to the Continental Generals—Defeat of Turenne at Marienthal—Condé, by his intrepidity, gains the Battle of Nordlingen—Victory of the French and English at the Downs—Turenne's want of Enterprise after that Battle—Turenne's Grand March across the Rhine and the Danube to Augsburg—Montecuculli deceives Turenne, and joins the Prince of Orange before Bonn—Turenne's Last Campaign—Remarks of the Emperor Napoleon—General Estimate of Turenne's Character—His Inferiority to Marlborough—Vauban commands at the Siege of Maestricht—His System of Parallels—He employs Ricochet Fire at Philipsburg and at Ath—He destroys the Equilibrium between the Attack and Defence of Fortresses—His Casemated Batteries at first Unsuccessful—His Improvements in Permanent Works—His Reputation is founded on great principles, not on any one arbitrary system.

THE Thirty Years' War, each event of which, if not originating in religious differences, ultimately became subservient to them, was remarkable from its long duration, the vast theatre on which it was waged, and the fierceness of the passions it evoked.

Such a contest, in which ancient alliances, similarity of language, and the relationship of blood were equally set at nought—a contest, the din of which resounded from the shores of the Baltic to the valley of the Po, from the mouths of the Scheldt to the Carpathian mountains, could not long remain a school of mediocrities—it demanded troops of no ordinary qualities, leaders of no vulgar stamp. Thus respectable tacticians, learned in the theories and slow formalities of an artificial system, were swept away before more earnest and enterprising spirits, conspicuous amongst whom shone the Swedish hero, Gustavus Adolphus.

This great leader and mainstay of the Protestant cause disembarked his little army of 15,000 men on the Pomeranian islands of Wollin and Usedom, in the month of June, 1630; and advancing rapidly on Stettin, he anticipated the arrival of the Austrians, and made himself master of this important town, which secured the command of the Oder, and while serving as a base and magazine for offensive operations, would also have covered a retreat in the event of disaster.

The landing and first movements of Gustavus, regarded by the Austrians with a contempt which was perhaps affected, raised high the hopes of his friends and adherents. The excellent discipline of his troops and their respect for private property, contrasted

strongly with the lawless depredations of the Imperialists, and conciliated alike the inhabitants of town and country; whilst his rapid and constant successes drew to his standards numberless recruits, all eager to serve under so distinguished a chief. Town after town yielding to his victorious arms, served at once to strengthen and enlarge his base of operations; and the approach of winter beheld him master of the greater part of Pomerania, and but feebly opposed on the Oder by the Austrian army, under Torquato Conti.

It was now that the prudence and forethought of Gustavus were to reap their reward. He had supplied his troops with sheepskin dresses, which, added to their natural hardiness, made them proof against the rigors and severities of a winter campaign. Not so the Imperialists, who suffered terribly from the piercing cold, and whose general was at length reduced to beg for a cessation of hostilities during the inclement season. But Gustavus returned for answer that 'the Swedes were soldiers in winter as well as in summer,' and, extending his conquests in every direction, drove the disorganized enemy before him into Brandenburg.

In all the marches and operations by which Gustavus advanced into the heart of Germany, there may be traced a degree of system and regularity which will be vainly sought in those of his predecessors. The great quantity of munitions consumed in modern warfare has made the necessity of preserving unbroken lines of communication far more imperious than it was in ancient times; and in his most daring enterprises, Gustavus never for a moment lost sight of this

first and most important measure of security. Thus he successively occupied Stettin, Custrin, Spandau, and Wittenberg, strongly fortified places, which kept open his communications with the Baltic, while serving as so many stepping-stones to his progress; and on which he relied when he confronted the Imperialists on the field of Leipzig,* to protect his retrograde movements in the event of defeat.

It was on the 7th of September, 1631, that the rival armies drew up in sight of one another, under the command of two hitherto unconquered chiefs. The reputation of Tilly, the Imperialist leader, was clouded by the sombre hue which also obscured the fame of Alva and Wallenstein. He was certainly not less celebrated for his cruelties than for his successes, though these latter had gained for him a name which caused Gustavus to esteem him as no unworthy foe.

The little skill which Tilly displayed in the disposition of his troops at the battle of Leipzig gives colour to the assertion that he was hurried into action against his own resolution, through the indiscreet zeal of Pappenheim, who commanded his left wing.

His army, which, like that of Gustavus, numbered about 35,000 men, was arrayed in a single dense line, without intervals, facing the west, at the foot of some hills, on which were planted his guns. By this vicious arrangement, his artillery was condemned to silence during the heat of the engagement, while the absence of a reserve augured ill for the Imperialist cause in the event of a first repulse.

The rapid advance of Gustavus across the open

* Called by the Germans Breitenfeld.

plain of Breitenfeld displayed to the best advantage the improvements which he had introduced into the organization and material of his army.

His infantry, divided into brigades of two regiments, the united strength of which amounted to 2016 combatants, was formed on two principal lines. In imitation of the legionary order of Marius, the brigades were separated by intervals equal to their fronts, and those of the second line faced the open spaces in the first. The mobility thus secured by a free play of lines, was further heightened by a comparatively shallow formation, in six ranks, and also by several changes of armament.

The musqueteers, who greatly preponderated in his brigades, were armed with light pieces, which enabled them to dispense with the cumbrous rest, and thus paved the way for the introduction of the bayonet; which was at first nothing more than a dagger thrust into the muzzle of the musket, and used at close quarters as a substitute for the projecting spike, or swine's feather of the old rest. Gustavus reduced the length of the pike to eleven feet, and deprived the soldiers who wielded it of all defensive armour, except a light helmet. His cavalry was generally formed in small bodies of three or four squadrons, each of which contained sixty-four horsemen, ranged at first on four ranks, but subsequently reduced to a depth of three, by the last rank remaining in support.

Notwithstanding this manifest advance towards perfection, it must be confessed that, like nearly all the generals of this period, Gustavus remained ignorant of the true destination of cavalry. If we except the most noted chiefs of the English civil wars, who, as

Cromwell, Rupert, and Ireton, boldly led their horsemen to the charge at full speed, we behold on every side the same false reliance on the fire of cavalry, the same slow pottering manœuvres, and the same vicious interlacing of horse and foot, for which, indeed, some admirers of Gustavus claim especial credit on his behalf.

The heavy Swedish cannon, cast of the tough iron for which that country is even now celebrated,* were admirably mounted and served. It has been argued, from the fact that some of the lighter brass pieces† were strengthened by coiled rope and hides, that they must have been of the rudest construction; but, although we may doubt the wisdom of such precautions, it is certain that these guns did good service on every occasion. They were loaded, by means of cartridges with the balls attached, more quickly than the soldier's musket. They combined great lightness with a requisite degree of strength, and kept pace not only with the longest marches of the army, but also with its most rapid manœuvres in the field.

Gustavus, not satisfied with giving to his army a high degree of mobility, breathed into its ranks a

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* At the present time Sweden is the only country of Europe which possesses iron of the quality required for casting light field-pieces.

† They consisted of a thin cylinder of beaten copper screwed into a brass breech, the chamber being strengthened by four bands of iron. The tube was covered with layers of mastic, over which cords were firmly rolled, and a coating of leather, boiled and varnished, completed the piece. The gun when mounted was so light that two men were sufficient to draw and serve it. Gustavus Adolphus is said to have been the first to use cartridges for cannon.

spirit of regularity and order. He simplified his divisions, and reduced them to symmetrical proportions. He introduced the use of distinguishing uniforms, which has been erroneously attributed to Louis XIV., and adopted a system of field movements which, if not perfect, could at least claim the merit of ease and regularity. In the hands of this great soldier, the Swedish army became pliant, active, and agile; obeying one impulse; easily restrained in success, or rallied in disaster, and especially formidable to an enemy who, like the Imperialists at Leipzig, placed their hopes in the weight of cumbrous masses and the fancied strength of a chosen position.

As Gustavus drove before him the cuirassiers with which Pappenheim, on the Imperialist left, had attempted to defend the passage of a little rivulet, a strong wind, charged with clouds of dust and smoke, blew straight in the teeth of his advancing army. Partly to this circumstance, and partly to higher considerations, must be attributed a change in his apparent plan of attack; for, instead of leading his columns directly against Tilly's front, he moved diagonally across the plain to his own right, and thus came in contact with the left wing of the Imperialists at a moment when the greater part of their guns were masked, and reduced to silence by the intervention of their own masses.

Tilly, conscious of the false position in which he was placed, and seeing himself in momentary danger of being outflanked and taken in reverse, threw forward his centre and right wing, and fell fiercely on the Saxons, who were formed upon the extreme left of the Swedes, and succeeded in routing them at

about the same time that Gustavus finally overcame the desperate resistance of Pappenheim. Thus, in each army was success balanced by defeat; in each a considerable change of front had taken place, and in each the advanced and victorious right threatened to overlap, and envelop the exposed left centre of the enemy.

It was in these apparently similar circumstances that the previous dispositions, not less than the present efforts of the two generals, decided the result of this hard-fought day.

The moment that Gustavus perceived the discomfiture of the Saxons, he dispatched a strong reinforcement to occupy part of the abandoned ground, and to strengthen the Swedish left in making head against the resolute charges of the Imperialists; whilst he himself, wheeling forward his right wing until it was perpendicular to the heights under which Tilly had originally formed, carried them, and sweeping along their crest, captured the guns which had been not less unskilfully posted than imprudently deserted, and at once brought them into play against the Imperialist masses. The victory was now assured. Tilly saw his army dominated from the heights, which should have been their protection, and witnessed the first serious effects of his artillery, so powerless against the foe, in the havoc which it scattered through his own ranks. Out-manœuvred and utterly defeated, his splendid army melted away on the very field of battle, and a poor remnant of 2000 men alone could be rallied in the retreat.

This triumph, not less brilliant than decisive, may be attributed to three principal causes—The weakness

of Tilly's position, which was defensible only against an attack in front;—the skill displayed by Gustavus in turning this weakness to the best account; and the orderly activity of his army, which manœuvred under fire with ease, rapidity and precision.

Perhaps to this last of the enumerated causes, is due the largest share of credit. Since the time of Gonsalvo de Cordova, the art of moving armies in the open field had often been neglected for and made subservient to a cramped, elaborate system of posts, intrenchments and fortifications. To occupy a strong position, for the mere sake of occupying it, was the modest limit which some generals were content to impose on their efforts. Maurice of Nassau, confessedly the first soldier of his day, fought but one battle, and the happy issue of that one was owing less to his own genius than to the courage and fortitude of his troops; and although the French civil wars furnished instances of fiery energy and dash, yet it may be generally asserted, that in the period immediately preceding the campaigns of Gustavus Adolphus, the slow, plodding devices of security were more esteemed and cultivated, than large combinations or bold and rapid evolutions.

To the vices of such a system Tilly sacrificed his army and his fame; forgetful of the great truth that the strength of a position is only that of its weakest point, he deemed himself invulnerable because secure from a front assault. That the Swedes should change the direction of their march and their apparent point of attack under his eye, under the very fire of his guns, seems never to have entered into his formal calculations; he was paralyzed by manœuvres which

perhaps from his original formation, as much as from irresolution, he was totally unable to meet. But in action, he showed that he at least possessed the true instinct of a soldier; and his successful attack on the Saxon contingent, before the Swedes were firmly established on the heights, might, had he been opposed by a less able adversary, have restored the balance of the fight; but the all pervading glance of Gustavus discerned the danger which his rapid decision averted; and Tilly, kept in check for awhile by some well applied reserves, then surrounded on three sides, and exposed to the concentrated fire of his own and the Swedish artillery, saw his fine army not so much defeated as utterly crushed and annihilated.

This first and most splendid of his victories over the Imperialists, left Gustavus the undisputed master of Central Germany, free to carry his standards even to the very capital of the empire, without dread of molestation. But the prudence which ever tempered his self confidence, and influenced his boldest designs, bade him forego so brilliant a triumph for the more solid advantages which he hoped to reap from an incursion into the western states, where various elements of resistance threatened to become formidable if left undisturbed.

Thither, therefore, leaving the conquest of Bohemia to the Saxons, he directed his march. And now, in the height of his fortune, standing in Europe without a rival—almost without an adversary—Gustavus never forgot those great principles to which, in more difficult times, his early successes had been due: whether he led his victorious

army beyond the Danube or the Rhine, the same considerations guided his march. To threaten the enemy's communications without exposing his own, was the key of his strategical conceptions. To confine the ravages of war to the enemy's territory, to leave the care of providing garrisons to his allies, to make few detachments from his own army, which he kept concentrated, and in hand, ready to launch forth as the impulse of the moment might direct: such were the objects which he constantly kept in view, such the means by which he overran the whole of Germany, and scattered to the winds a power which had threatened to crush beneath its despotic weight the young religious liberties of Europe.

At the battle of Lutzen, which closed his glorious career, Gustavus found himself, as at Leipzig, opposed by an Imperialist general who had hitherto been a stranger to defeat. Wallenstein, scarcely less formidable by his talents and ambition to his country than to his country's foes, assumed the chief command at the almost abject entreaties of the Emperor, and soon brought to bear, upon broken and demoralized forces, the power of a firm hand and undaunted spirit.

At the magic sound of a name interwoven with brilliant victories, with boundless wealth, with that thirst for uncontrolled sway so captivating to the soldier's mind, recruits flocked from every side to the Imperial standards, and Wallenstein soon found himself at the head of 60,000 well-equipped men, a force sufficiently formidable to make Gustavus abandon all aggressive designs, and seek security in a fortified position under the walls of Nuremberg. Thither he was followed by the Imperialists, and the two armies,

strongly intrenched on the river Pegnitz, and cut off in a great measure from the resources of the surrounding country, entered into such a fearful yet uneventful struggle for existence, as had in the previous century been waged between Gonsalvo and Mantua on the marshy banks of the Garigliano.

At length the arrival of reinforcements enabled Gustavus to take the field; but the decisive battle, which for months had appeared imminent, was yet to be delayed. The two armies marched, countermarched, and manœuvred, without closing upon one another, until a false step made by Wallenstein, in detaching a large portion of his force under Pappenheim, afforded the long watched-for and desired opportunity. Then promptly was the Swedish army set in motion against the weakened enemy, which it found intrenched in the neighbourhood of Lutzen, along the high road which runs from Leipzig to Weissenfels.

Even before the commencement of the action, Wallenstein was palpably out-manœuvred by the Swedish king; for, with forces superior on the whole, he found himself the weaker at the decisive point; but this first great disadvantage being admitted, no measure by which it could be either diminished or neutralised was neglected by the Imperialists. Every portion of their ground was occupied in the most advantageous manner. The trenches of the high-road in their front were lined with musqueteers; their flanks, which were covered by cavalry, rested respectively on a village and a canal; and their guns, posted upon gentle eminences, swept over, and commanded the whole field of battle.

A dread of Pappenheim's return, which was, indeed, well-grounded, urged Gustavus to avoid all unnecessary delay; and, having ranged his troops in an order somewhat similar to that adopted at Leipzig, he advanced, as the morning mists cleared away, to the attack.

With the preliminary dispositions of Gustavus all resemblance between his two great contests was at an end; for Lutzen, although disputed by two rival generals, the ablest and most equally matched of Europe, was essentially a soldier's battle. Wallenstein, by setting fire to some houses, had further secured himself from flank attack; and Gustavus, on his part, felt little disposition to manœuvre: confiding in the tried qualities of his troops, and their great numerical superiority, already established by his generalship, he left the issue in their hands, and having ordered the charge to be sounded along the whole line, the two armies closed in murderous and long-doubtful conflict.

At first nothing could resist the impetuosity of the Swedes, the trenches were carried in the teeth of a terrible fire, and three of Wallenstein's fine brigades were routed, when that chieftain advanced in person at the head of his reserves to restore the balance of the fight. It was now the turn of the Swedes to yield ground, and Gustavus, hurrying from the extreme right, where he had led a successful cavalry charge, arrived too late to check the retreat of his infantry. It was whilst endeavouring to rally his hardly-pressed bands, that the hero met his death—he fell, pierced with balls, and his riderless charger, galloping wildly through the ranks, an-

nounced to the soldiers that their beloved chief was no more.

Yet the first effect of their great, irreparable loss upon the Swedish troops was not one of discouragement or despair. Stung, as it were, to madness, they intrepidly returned to the attack; again were the trenches past, the batteries carried, and the Imperialists hurled back in confusion, when the arrival of the long-awaited Pappenheim once more changed the aspect of the struggle.

Clearing his way through the broken bands which obstructed his advance, he burst with the whole of his cavalry upon the victorious and somewhat disordered Swedes, and forced them back, foot by foot, from their hardly-won vantage ground. It was here that the Swedish infantry pre-eminently signalized themselves. Borne down and oppressed by the weight of numbers, they marked their glorious disaster by corpses ranged with the exact regularity of parade. At length so much constancy met with its reward. The gallant Pappenheim was shot down, and the exhausted Imperialists began to waver and to hesitate. Then, as in the Roman Legions, the Hastati, the Principes, and the Triarians, at the critical moment became merged into one; so the last reserves of the Swedes, filling the widened gaps in the first line, presented one continuous and unbroken front, before which the Imperialists were finally forced to yield. Along the whole line the Swedish standards were advanced; in every part of the bloodstained field the Swedish cause was triumphant. Gustavus was avenged even before he had been mourned.

Although Lutzen, it has been already stated, was

essentially a soldier's battle, in which the generals were content to rely rather on the impulsive courage of their troops than on deeply meditated or elaborate combinations, it must not be deemed, on this account, the less worthy of notice. It remains an instructive memorial of the efficiency and discipline to which the talents of two great leaders and the experience of campaigns had raised the rival armies.

In order fairly to estimate and compare the respective qualities of the troops of different periods, the surest test is to be found in their readiness to rally after an unsuccessful charge or an inevitable reverse. This buoyancy of character, this unwillingness to own defeat, which, as regards our soldiers, has found expression in the phrase, 'They never know when they are beaten,' this eagerness, in popular words, to come again, has always been the crowning attribute of the most distinguished troops. It rests on a combination of high natural bravery and perfect discipline. The one may prevent a shameful flight—the other may inspire dogged resistance or a brilliant and impetuous attack; but from their union alone can spring that staunch self-confidence, that trace of the master-hand which animated the rival armies on the plains of Lutzen. Five times were the Imperialist batteries lost and won. Seven times did the Imperialist cavalry of Piccolomini return to the charge; and when at length night put an end to the conflict, and success tardily declared for the Swedes, it was such a qualified and dearly-bought success as filled both armies with mutual and well-deserved respect.

Before further pursuing the course of military events on the Continent, it may not be uninteresting

to cast a passing glance at the English civil wars, in which, although the chief performers were but mere novices in the art of war, we shall yet find displayed a natural aptitude for command, a well-regulated boldness and administrative skill on the part of the leaders, joined to such steadiness, discipline, and withal intrepidity in the troops, as must somewhat shake our faith in the infallibility of those critics who so complacently assert that the English are not a military nation.

In the spring of the year 1645, the Parliamentary party were dissatisfied with the constitution of their army, and the jealousies of its commanders, which stood in the way of any sincere co-operation, and rendered the most promising successes barren of great results. They felt, in the words of a cotemporary writer, that 'Whatever was the matter, two summers passed over, and we were not saved. Our victories, so gallantly gotten, were put into a bag with holes—what was won one time was lost another. The treasure was exhausted, the countries wasted; a summer's victory proved but a winter's story, and the game was to be new played again next spring.' Weary of a state of things thus quaintly, yet truthfully described, they resolved, at the risk of offending many, to entirely reconstruct their army, and redistribute its chief commands.

By the self-denying ordinance, all members of either House of Parliament were made incapable of holding military rank; and, as many other officers resigned in disgust at the proposed changes, ample scope was afforded for fresh appointments. Fairfax was named to the chief command, and Cromwell, in

whose favour the ordinance was relaxed, became lieutenant-general of horse.

Under these tried soldiers the reorganization of the forces commenced early in April; and so rapidly did it proceed, that, before the expiration of that month, Cromwell was able to inaugurate the formation of the new model by a brilliant cavalry success over the Royalists.

In this new model, the cavalry and infantry were alike divided into regiments; which were again subdivided into troops and companies, commanded by captains, and of an average strength respectively of eighty and a hundred and twenty men. To each infantry regiment of ten companies were appointed a colonel, a lieutenant-colonel, and a major; while, for a cavalry regiment of only six troops, two field-officers were deemed sufficient. It will be observed, that this arrangement differs but little from that followed in our army at the present day, except in the size of the cavalry troops, in which it may be questioned whether the difference is at all to our advantage. The Parliamentary troop,* of from eighty to ninety horsemen, was at once a tactical or combative and an administrative unit; whilst the present small troops, besides requiring a far greater proportion of officers, are too weak for distinct action in the field, and are therefore usually thrown into squadrons for manœuvring, thus creating an additional tactical element, which has nothing corresponding to it in the infantry force, and which is utterly useless for administrative purposes.

* The cavalry were usually drawn up six deep, and armed with sword and pistol.

As the whole of the new modelled army only amounted to 21,000 men, and was frequently much scattered about the country, no permanent division existed of greater size than the regiments; but whenever a sufficiently large force was collected for action, it was distributed into brigades of three or four regiments each, under the senior colonel. To this source may be traced the origin of our modern brigade system, which has been so often indifferently attributed to Gustavus and Turenne.

Excellent as was the regimental organization of the Parliamentary army, its administrative arrangements have, perhaps, stronger claims on our admiration. Each department, however humble its functions, possessed its own responsible staff, yet by judicious groupings and subordinations, perfect harmony was obtained, where a number of co-ordinate and jealous authorities could have produced only jarring discord.

The general staff of the army included, in addition to the commanders of infantry, cavalry and ordnance, the following chief officers, whose duties are to a certain extent defined by their titles. Eight treasurers at war, who controlled the finance of the army, and four commissioners of parliament, charged with furnishing recruits, equipment, material, stores and ammunition, and forming, with the treasurers, a permanent committee of supply; a physician to the forces; a commissary general respectively for the musters, the victuals and the horse provision, a quartermaster-general, and a scout-master-general, who was at once chief of the secret intelligence department and director of reconnaissances and advanced patrols.

Under the immediate command of the generals of

infantry and cavalry, were the adjutants-general, quartermasters-general and marshals of the two arms, whose various functions were most accurately defined, by which means, as well as by their low relative rank in the army, and by their constant personal communication with their chiefs, all the clashing and uncertainty of rival authorities was avoided.

The lieutenant-general of the ordnance was charged with the direction of the artillery, engineers, and transport of the army, in which duties he was assisted by a wagon-master-general and a commissary of draught-horses; an engineer-general and a captain of pioneers; a commissary-general of ammunition, a comptroller of ordnance and a master gunner of the field.

Thus was constituted a staff which was always found equal to the occasion, without being either elaborate in its details or exalted in rank beyond what the nature of its functions required, and in which, forgetful of petty rivalries, all strove to co-operate for the common good, even to the commander-in-chief, of whom it was said that his title seemed to raise him to do more, not to be more than those by whom he was surrounded.

Having thus glanced at the constitution of the Parliamentary forces designated as the new model, we may, without dwelling on their earlier exploits, at once pass on to that decisive action, in which they so terribly asserted the superiority of order and discipline, over the not inferior courage and numbers of their opponents.

After much purposeless and irresolute countermarching in Northamptonshire during the early

part of June, the Royalist army found itself so closely pressed by Fairfax, as to be unable to carry out a projected movement on Leicester without seriously compromising the safety of its rear guard. Hence the king, at the head of forces more numerous on the whole, and especially so in that cavalry which, throughout this war, played so prominent a part, resolved to retrace his steps from Harborough, where his van had arrived on the 13th, and to reassume the initiative by attacking the Parliamentarians, who were treading closely at his heels.

Fairfax, quickly apprised of this movement by his excellent scout-master-general Watson, got his army into position at its appointed rendezvous, by five o'clock on the morning of the 14th; but the Royalists, by manœuvring from their right, with the double object of turning his left wing, and gaining the advantage of the wind, which blew from the westward, compelled him to change his first dispositions, and he accordingly withdrew to the ridge of a hill running from east to west, at a little distance from the village of Naseby.

In order the better to conceal his formation from the enemy, Fairfax drew up his main body a hundred yards in rear of this ridge, which it was in his power to regain at pleasure. In his centre were the brigades of infantry under Skippon, together with the great bulk of the artillery. The cavalry, amounting in all to six thousand, was pretty evenly distributed between Cromwell on the right, and his son-in-law, Ireton, on the left. The whole of the first line, and especially the cavalry, was supported by strong reserves, and the left of the position was secured by

a thick hedge, which Ireton had lined with dismounted dragoons. A forlorn, as it was termed, of 300 musqueteers was posted in skirmishing order down the slope of the hill, with directions to engage the light troops of the enemy, but to retreat on the main body as soon as they were pressed.

On their part, the Royalists advanced with their accustomed gallantry in an order somewhat resembling that already described. Driving in Fairfax's skirmishers, they attacked his first line, which had regained the crest of the hill. But whether it arose from a preconcerted plan disclosed by their early manœuvres, or from the bold attitude assumed by Cromwell, or yet more probably from the fiery ardour of Rupert, who commanded the right wing of the Royalists, the chief weight and violence of their onslaught was directed against the left and left-centre of the Parliamentary army.

Cromwell, who well knew the advantage of meeting, instead of passively receiving, a cavalry charge, allowed the Royalists to advance within a convenient distance, and then anticipated their attack, by launching forth the whole of his first line in échelon of regiments from the left,* each regiment being duly followed and supported by its reserves.

Before this imposing mass, the Royalists committed

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* The left of Cromwell's wing was most approached to the centre of the whole line. It will be remembered that Timour's favourite plan of attack was an advance in échelon from the centre, supported by strong reserves. It is not a little singular that the systems of these two great self-taught generals bore so close a resemblance, and to this day are recognised as the best upon which great cavalry movements can be modelled.

the fatal error of halting and opening fire. As a matter of course, such a fire was perfectly harmless, and almost equally, as a matter of course, those who were weak enough to deliver it, being resolutely charged home at the sword's point, were ridden down like sheep, and driven in hopeless disorder from the field.

Meanwhile, in the centre, the contest was more equally maintained by the infantry of the two armies, which, both in numbers and composition, were not unfairly matched. In each the regiments were composed of musqueteers and pikemen, the proportion of the former varying from one-half to two-thirds of the whole force. The deep order, the defensive armour, and long pike of the Germans,* were retained in preference to the more pliant system of Gustavus, and hence we may surmise that these bands relied for success rather on their weight and solidity than, like the cavalry, on the brilliant dash of their charges and evolutions.

At length the Parliamentary infantry, sorely pressed on its left, began to give ground, and retreated beyond the first line of reserves; but these reserves, being reinforced by two regiments of infantry and some guns, boldly stood their ground, and by checking the further progress of the Royalists, to a certain extent restored the balance of the fight. The position of the Parliamentary army was however becoming

* The usual formation of the infantry was ten deep, the pikemen being in the centre of the line and the musqueteers on the flanks; the former wore the cuirass and wielded a pike 15 feet long exclusive of its head; the latter employed the rest, and delivered their fire by ranks.

extremely critical, for Rupert, on their left, was carrying all before him. Ireton, like his father-in-law, and probably in concert with him, had advanced in échelon of regiments, from his inner or right flank, and had with his foremost troops gained a decided success, but the two regiments on his extreme left, instead of duly supporting this movement, allowed themselves to be anticipated by the Royalists, who, galloping down upon them whilst they remained stationary, overthrew and totally dispersed them. Thus Ireton, who, after disposing of the cavalry in his front had turned to his right, against the Royalist infantry,* found himself suddenly isolated in the midst of superior forces. He himself was desperately wounded, and taken prisoner, and his most advanced regiments, after piercing through the first and second lines of the Royalist cavalry, were finally overpowered by their last reserves, and the whole wing, deprived of its leader, became an utter wreck, which Rupert chased up to the village of Naseby, before he turned his attacks against the uncovered flank of Fairfax's infantry and artillery.

We may here pause for a moment to compare the positions of the rival armies with those at one time occupied by the Swedes and the Imperialists at the battle of Leipzig, and from the closely analogous circumstances, we may judge not only how far short Rupert fell of the excellence of Gustavus, but also how immeasurably superior rose Cromwell and Fairfax to the celebrated Germans, Tilly and Pappenheim.

* The English infantry were taught to form squares in order to resist cavalry: on these occasions the pikes were in the centre, the musqueteers being thrown around them as a girdle.

At Naseby, as at Leipzig, the attacking army manœuvred with a view of gaining the wind, and turning the left of the army in position, and although Fairfax, happier than Tilly, outmanœuvred the Royalists, and forced them to a direct attack, yet the parallel between the two battles was restored by the success on the right, and discomfiture on the left of both armies; while their centres maintained a fairly poised contest—a partial change of front having taken place, and the left centre of each being uncovered, and exposed to the flank attacks of the enemy.

It was in such seemingly equal circumstances that the calm yet rapid decision of Cromwell prevailed over the headlong rashness of Rupert, and finally secured victory to the Parliamentary standards. When Cromwell beheld the left wing of the Royalists routed, and in full retreat, he detached only a few troops, with orders to pursue, to press upon, and to prevent the rallying of the broken masses, whilst he himself, with the bulk of his cavalry, wheeled round, and fell upon the unguarded flank of the king's infantry, then hotly engaged in front by Fairfax and Skippon.

Against this double attack no intrepidity could avail, and, after bravely resisting successive charges, the Royalist centre was completely broken and dispersed, with the loss of all its guns. At this moment Rupert returned from his ill-starred pursuit, and made a dash at the artillery on Fairfax's left, which he summoned to surrender; but here everything was prepared for his reception, and finding himself exposed to a hot fire, he hastened to join the king, who was endeavouring to rally the discomfited cavalry of his left wing.

When order was to a certain extent restored, the relative positions of the armies were as follows:—The two wings of the Royalist cavalry were united in one body about a quarter of a mile in rear of their original position, and entirely unsupported by either infantry or guns. The whole of the Parliamentary horse, for Ireton's had been rallied and re-formed, were in position within carbine shot of the Royalists; the two wings being separated by an open space, towards which the centre, under Fairfax, was slowly advancing. The Royalists, however, did not wait for the completion of this formidable second order of battle, which, like the first, extended about a mile from right to left; but, as soon as a dropping fire was opened upon them by the dragoons, they wheeled about, and made the best of their way towards Leicester, closely pursued by the victorious cavalry.

The number of slain on the field of battle amounted on each side to about a thousand men, but beyond this, the king experienced heavy losses in his retreat, and left the whole of his artillery, train, and baggage, together with five thousand prisoners, in the hands of his enemies; so that, at Naseby, his whole army may be said to have melted and passed away beyond hope of reorganization.

Such decisive results were due not less to the terrible energy of Cromwell than to the preponderance in both armies of light cavalry, so difficult to rally, so formidable in pursuit.

By the rapid evolutions of this force, the artillery was reduced to comparative insignificance, and can claim but small share in the honors of the day, while the infantry on both sides behaved as English infantry

always have done. Taken as a guage of military aptitude and capacity, Naseby must ever be a source of national confidence and pride. Standing, in point of time, between the victories of Gustavus and that of Condé and Turenne at Nordlingen, with which of them will it not bear a favorable comparison? Where shall we find in a higher degree order, discipline, and calm intrepidity? In what respect does Cromwell, who never drew a sword till upwards of forty, yield to any of these famous commanders? And how immeasurably superior to them all is he as a cavalry leader and an improver of victory.* But when we reflect that these splendid troops, these able chiefs,† were for the most part hastily formed out of such rough, unpromising material as country squires, yeomen, and artisans, may we not hopefully look towards the future, in the firm trust that, should the occasion unhappily arise, England will again prove herself as much a military as she has ever confessedly been a martial nation?

While these civil wars were yet raging, Turenne, a nephew and disciple of Maurice, was acquiring a high reputation on the Continent. Entering the

* 'Cromwell never fought a battle without gaining a victory. He never gained a victory without annihilating the force opposed to him.' (MACAULAY.) Turenne, in his last campaigns, continued to cramp the action of his cavalry by interspersing them amongst his infantry.

† 'It is a remarkable circumstance that the officers who had studied tactics in what were considered as the best schools under Vere in the Netherlands, and under Gustavus Adolphus in Germany, displayed far less skill than those commanders who had been born to peaceful employments, and who never saw even a skirmish till the civil war broke out.'—MACAULAY.

service as a volunteer carrying a musket, at the age of thirty-two he became a Marshal of France. In the spring of the year 1645, he was defeated by Merci at the battle of Marienthal, where his infantry, as they had done on former occasions, behaved badly; but in the autumn he commanded the left wing of Condé's victorious army at Nordlingen. The right and centre of the French being broken and dispersed, the battle seemed irretrievably lost, when Condé, joining Turenne on the left, resolved to make one final effort. They advanced and overthrew the opposing wing, and then, having brought their front perpendicular to Merci's line of battle, they fell on his exposed centre. Merci was mortally wounded; but success would yet have crowned his arms, had not the Bavarians disgracefully surrendered the key of the position on finding themselves temporarily surrounded.

The remarks of Napoleon on this battle are of great value, and might have been profitably studied on a recent occasion. , He says, "Condé merited victory by the obstinacy and extraordinary intrepidity which distinguished him; for if these qualities availed him nothing in the attack on Allerheim, they impelled him, after having lost his centre and his right, to renew the action with his left, his only remaining force; for it was he who directed all the movements of this wing, and who is entitled to all the glory of its success. Observers of ordinary mind will say that he ought to have made use of the wing which remained untouched for the purpose of securing his retreat, and not to have hazarded the remainder of his forces; but with such principles, a general is sure to miss every opportunity of success, and to be con-

stantly beaten. It was thus that the Count de Clermont reasoned at Crevelt, Marshal Contades at Minden, and the Prince of Soubise at Wilhelmsthal. The glory and honor of his country's arms is the first duty which a general who gives battle ought to attend to, the safety and preservation of his men is but the second; but their safety and preservation is, in fact, to be found in that daring obstinacy itself, for even had the Prince de Condé commenced a retreat with Turenne's corps, he would have lost nearly all his men before he could have reached the Rhine. It was thus that after Minden, Marshal Contades lost in his retreat, not only the honor of his country's arms, but more men than he would have lost in two battles. Condé's conduct is worthy of imitation; it is agreeable to the spirit, the rules, and the feelings of warriors. If he did wrong in giving battle to Merci in the position he occupied, he did right in never yielding to despair while he had brave men under his colors. By this conduct he gained the victory, and deserved to gain it." Thus we find a judgment from which there is no appeal recorded in favour of that dauntless intrepidity which refuses to acknowledge defeat whilst hope yet remains —thus are Nordlingen and Albuera held up as bright examples to follow, and thus are condemned those plodding and spiritless commanders whose mild ambition seems fully gratified when they succumb according to rule, and retreat by the most orthodox methods.

In several campaigns subsequent to that of Nordlingen, Turenne overran Germany in every direction, crossing the Rhine, the Danube, and the Lech, and planting the French colors for the first time on the

banks of the Inn. His marches and manœuvres, though attended with varying success, always display a large grasp of mind and great fertility of resources, and are especially valuable to the military student.

Of Turenne's victories, that of the Downs, gained over the Spaniards, in the year 1658, was the most brilliant. Assisted by an English fleet, from which a brigade of 6000 men had been landed, Turenne was carrying on the siege of Dunkirk, when the Archduke John, with 14,000 troops, of which 8000 were cavalry, marched to the relief of that place from Ypres. On the 13th of June, he arrived without either guns or intrenching tools within a league of the French lines, and took up a position with his right on the sea and his left towards the canal of Furnes. At daybreak, on the 14th, Turenne drew up his army of 9000 infantry and 6000 horse in three lines, the third being exclusively of cavalry, and his artillery being distributed along the front. On his left was the English brigade, which, seconded by the fire of the fleet, attacked and routed the Spanish right. The receding tide permitted the French cavalry to manœuvre on the right rear of the enemy, which it was thus enabled to take in reverse and overwhelm in detail. Condé, who commanded the Spanish left, and at one moment appeared likely to penetrate into the place, finding himself isolated, was obliged to join in the common flight. The fugitives were pursued to the ramparts of Furnes, and left 4000 prisoners in the hands of the French, whose loss was insignificant.*

* Some writers pretend to discover in this battle an application of the oblique order by Turenne. The Emperor Napoleon, however, did not share this opinion.

In this battle, where, as at the Alma, the fire of English ships raked the enemy's flank, and the English infantry bore the brunt of the day, every advantage was on the side of Turenne; superior numbers, artillery to which the Spaniards had none to oppose, and the co-operation of a powerful fleet. His victory was followed by the surrender of Dunkirk, ceded according to agreement to Cromwell, and the capture of many smaller places; but in the opinion of Napoleon, Turenne did not make the most of his good fortune.

'After the taking of Dunkirk, and so brilliant a victory as that of the Downs, the junction of Marshal la Ferté, who had just taken Montmedy, and with the inestimable advantage of commanding the sea, Turenne might have done more than he did. He ought to have struck a grand blow, and taken Brussels, which would have rendered the French arms far more illustrious, and accelerated the conclusion of peace. An event of such importance would have produced the fall of all the small places. Turenne infringed the rule which says, 'Avail yourself of the favour of fortune, while she is in the humor; beware that she does not change, through resentment of your neglect: she is a woman.'

It is not, however, in the field of battle that we must seek the foundation of Turenne's military fame, but rather in those scientific combinations, which, embracing vast theatres of war, could reduce all the events and operations of a campaign into one harmonious, well-concerted whole.

Of his great marches none is bolder or more skilful than one of his earliest, that of the year 1646. Having collected his army at Mayence, he was medi-

tating a junction with the Swedish general Wrangel, in Hesse, when the Duke of Bavaria, in violation of his promise, joined the Imperialists, and the combined forces directly interposed between the French and Swedish armies. Without waiting for orders, Turenne broke up his camp, marched eighty leagues down the left bank of the Rhine to Wesel, where he crossed that river, re-ascended its right bank, out-manœuvred the Imperialists, and effected his junction with Wrangel, at Giessen, on the Lahn. The Imperialists retreated to the Camp of Friedburg; but Turenne, adhering to his original plan of carrying the war into Bavaria, marched with 20,000 men, of which half were cavalry, and sixty guns, by Aschaffenburg, on Donauwerth, where he passed the Danube, proceeded to the Lech, crossed that river, and surrounded Augsburg. Having, by joining the Swedes before Rain, imprudently allowed reinforcements to be thrown into Augsburg, he was forced to abandon its siege; he marched to Lauingen, on the Danube; finding the Imperialists encamped between Landsberg and Meiningen, Turenne, by a series of bold manœuvres well worthy of detailed study, marched on Landsberg, seized the bridge over the Lech, the depôt of the Imperialist stores, and compelled their army to evacuate its excellent position, to repass the Lech, and hastily to return to winter quarters in Austria.

Twenty-seven years after this celebrated though bloodless campaign, Turenne found himself opposed to Montecuculli, scarcely his inferior as a master of the craft and subtleties of war. Towards the close of the year 1673, Montecuculli, at the head of a respectable force on the Maine, desired to effect a junction

with the Prince of Orange, who had invested Bonn. In order to do so it was necessary to elude the vigilance of Turenne, and in this he succeeded. Marching down the right bank of the Maine, Montecuculli crossed the Rhine at Mayence, as if with the intention of entering Alsace by its left bank. Turenne was deceived, and hastened to take up a position at Philipsburg; but Montecuculli without delay embarked his infantry on the Rhine, which he descended as far as Cologne, and joined the Prince of Orange. Turenne, greatly mortified, also descended the Rhine, but Bonn had already capitulated after nine days of open trenches, and both armies went into winter quarters. On these operations Napoleon observes, 'This march established the reputation of Montecuculli. The error committed by Turenne was a blemish to his glory; it was the greatest fault of which this distinguished commander ever was guilty. He manœuvred at too great a distance from his enemy. He did not act according to Montecuculli's movements, but ascribed to him without any foundation whatever the intention of entering France, where he would have been insulated and exposed to the combined attacks of two armies. Yet no one knew better than Turenne that war is not a conjectural art; he ought to have regulated his movements by those of his adversary, and not by his own ideas.'

In his last campaign, that of 1675, Turenne was again pitted against Montecuculli, over whom on this occasion he established a decided superiority. On the 27th of March, the French army of 25,000 men encamped under the walls of Strasburg, in order to overawe the citizens, with whom Montecuculli was in

correspondence. This general at the head of a more numerous force commenced operations, descended the Rhine by its right bank, gave out that he was going to besiege Philipsburg, but constructed a bridge at Spire, and passed to the left bank. Turenne, neglecting this leading movement of the enemy, crossed to the right bank; for this purpose he threw a bridge over at Ottenheim, four leagues above Strasburg, and marched on the Kintzig, taking up a position which covered both the city and his bridge where he had constructed a tête-de-pont. After several days hesitation, Montecuculli was obliged to follow Turenne's movement; he repassed to the right bank, prolonged his left along the Kintzig, and menaced the bridge of Ottenheim in the hope of compelling Turenne to repass the Rhine, or to uncover Strasburg.

The French Marshal, finding that so long a line of defence could only be maintained by scattering his forces, raised his temporary bridge on the 22nd of June, and removed it down opposite Altenheim, within two leagues of Strasburg. Baffled by this contraction, Montecuculli, having ordered the magistrates of Strasburg to furnish a bridge of boats and a supply of ammunition, descended the Rhine and encamped in the plain of Scherzheim, hoping to receive his convoy. Turenne followed him, encamped in the plain of Freistett resting on the Rhine, the banks and islands of which river he fortified, and thus intercepted the enemy's communications with Strasburg. This position was, however, marshy and unwholesome, while that of the Germans was excellent, and they were well supplied with provisions, chiefly from Offenburg. On the 15th of July Turenne raised his camp,

passed the Renchen at a ford which was but little known, and cut off Montecuculli not only from Offenburg but also from Count Caprara, in order to regain his communications with whom he was obliged to retreat behind Susbach. Turenne followed this movement, encamped opposite Susbach, and meditated an attack when, on the 26th of July, a cannon-ball terminated his career. He was succeeded in the command by two generals who could not agree, and the French army, after an indecisive battle, withdrew across the Rhine.

Of these operations, so full of interest and instruction to the soldier, Napoleon has left us the following brief summary. 'Turenne proved himself, in this campaign, incomparably superior to Montecuculli: first, by compelling him to follow his lead; secondly, by preventing him from entering Strasburg; thirdly, by intercepting the bridge equipage of Strasburg; fourthly, by cutting off his army on the Renchen, and compelling it to repass the Black Forest. But he committed an error which might have produced the destruction of his army if he had had the Prince of Condé to deal with: this was the construction of his bridge four leagues above Strasburg, instead of placing it only a league from that city.'

In reviewing the career of Turenne and the judgment of posterity upon his merits, few can fail to observe how differently he has been estimated by military men and by the general public; nor is it difficult to account for this disagreement, for the enthusiasm of professional writers, and the cold, hesitating approval wrung from civilians, and thus expressed by Arnold: 'Turenne's military reputation we must take

for the most part upon trust, not disputing it, but being unable to appreciate it.' A clue to this apparent mystery exists in the commentaries of those who raise loudest their voices in praise. No one has expressed greater admiration for Turenne than Napoleon, no one has more constantly held him up as a model to imitate; yet from his lips it would be easy to prove that Turenne was deficient in many of the highest qualities of a general.

Of all that can be learnt in schools of the art of war, of its theories and technicalities, Turenne was a perfect master. His plans of campaign, the fruits of study and meditation, were, if not altogether faultless, at least superior in originality and boldness of design, in scope and in scientific combination, to those of his immediate predecessors, with the exception of Gustavus. Some of his marches may be ranked with those of Napoleon and Marlborough; but when the hour of decisive action had arrived, Turenne displayed all his inferiority to those great generals. Let us, for instance, compare his justly celebrated march of 1646 from Mayence to the Danube and the Lech, with that of his pupil Marlborough from Maestricht towards the same points in 1704. Although Turenne had not equal difficulties to contend with, we will place the two operations viewed strategically on the same level—but how widely different in results! Marlborough arrived at the decisive point, to reach which he had made such sacrifices and incurred so many risks, stormed the intrenched camp of Donawerth, and attacking the enemy before they could gather in all their reinforcements, gained the glorious victory of Blenheim, which humbled to the dust the power of

France, and changed the whole aspect of European politics. Turenne, on the other hand, arriving before Augsburg, the burghers of which were, according to Napoleon, ready to deliver up their keys, trifles, hesitates, allows the place to be relieved, and terminates a campaign so full of brilliant promise, so abounding in proofs of genius and sagacity, with a paltry triumph concerning winter quarters.

The campaigns on the Rhine are marked by the same vigour of conception and fruitlessness of result. We cannot refuse to admire the refined subtlety, the wily devices of Turenne and Montecuculli; but their attitude reminds us rather of two expert fencers, at an assault of arms, playing with buttoned foils, and exhibiting their easy graces and elaborate science, than of men really bent on the stern business of life and death. They advance and retreat, they feint and parry, march and counter-march, manœuvre and out-manœuvre, with tedious caution and perseverance; but we wait in vain for the fatal stroke. We miss the eager eye and the ready hand of a Cromwell or a Condé, inspired by their soldier instinct when to launch forth their strength, and stake everything on the result of a single blow.

The fact cannot be concealed that these two celebrated rivals of the seventeenth century, although personally brave, often wanted nerve and moral resolution at the critical moment of action. As it has been observed, their aim seldom rose above the possession of a winter quarter. Where they had sown they hesitated to reap. Rarely venturing to strike home, they delighted to play a gigantic game of hide-and-seek, and like Marmont at Salamanca, when they could

not overreach the enemy, they occasionally succeeded in out-manœuvring themselves.

Montecuculli was the less enterprising of the two, and perhaps in this he was justified, as Schlegel asserts, by the fallen state and poor resources of Austria. But Turenne could plead no such excuse; in 1672 Louis XIV. had taken the field with 100,000 men, of whom three-fourths were infantry, together with a battering and field-train of artillery. The military capabilities of France were developed to their utmost,* and the severest loss—even that of an entire army—would not have endangered her safety. The very circumstances which urged caution and delay on the one side, called for prompt and vigorous action upon the other; yet Napoleon, in the midst of well-merited praise, pauses again and again to lament the hesitation and timidity of Turenne, after the battle of the Downs, before Amsterdam and Augsburg, and when he became the easy dupe of Montecuculli, in 1673. Nor is this blame much qualified by the remark that, 'As he grew older, Turenne evinced greater courage than he seemed to possess in early life;' for, in criticising the battle of Entzheim, fought within a few months of his death, Napoleon speaks thus: 'If, after taking the little wood, which the enemy had defended with all his means, Turenne had pushed his advantage, the battle would have been decisive. He might, at all events, have lain on the field of battle, but he fell back a league and a half the

* Louis at one time could boast of upwards of 400,000 soldiers, 8000 guns, and a hundred ships of war.

same day. On this occasion he carried his circumspection so far, that it amounted to timidity, although no man was more sensible of the influence of opinion in military affairs.' From such a judgment, delivered in no hostile spirit, few will venture to appeal; it confirms Turenne in the first rank of strategists and theoretical soldiers, but it emphatically denies him the possession of the calm rapid glance, the dauntless intrepidity, that inspiration springing from the midst of peril, which give a crowning touch to the character of a great general..

Serving in the French armies with Turenne, less esteemed by cotemporaries, yet destined to exercise a far higher influence on the art of war, was Vauban, the first of engineers. Born in the year 1633, at the age of seventeen he entered the service as an infantry cadet, but soon displayed a preference and special aptitude for the study of fortification, to which branch of his profession he was permitted entirely to devote himself. Already Sully, that great administrator, had felt the want of a permanent establishment of engineers, which he created in the year 1604, under the name of the engineers in ordinary to the king; but, however useful this body may have been, they had done but little in the cause of progress when young Vauban appeared upon the scene.

At the siege of Gravelines in 1658, and that of Lille, in 1667, in each of which he commanded one of the attacks, Vauban gave proofs of his ability. He recommended the use of cross-fires, and the employment of shells for destroying earthen parapets; but it was only when, in the year 1673, the entire direction of the siege of Maestricht was entrusted to his hands,

that he was able to desert the beaten track, and display the vast resources of his art.

Having selected a front of attack, he commenced simultaneously three approaches, which he connected by a large place of arms, or trench, parallel to the works of the place, and distant from the crests of the covered ways about 600 yards. This parallel afforded shelter to a numerous trench-guard, and its most favourable points were selected for the formation of batteries. The attack could then be pushed forward without fear of the enemy's sallies, so long as these, in order to reach the advanced works of the besiegers, had to traverse a greater space than the supporting force in the trenches.

Arrived about half-way towards the crests, Vauban traced a second parallel, from which so severe a fire could be kept up against the defences of the place as to render the employment of sorties a matter of extreme danger. If by this second line of attack any of the batteries in the first were found to be masked, they were advanced to more commanding situations, and the works of approach, thus protected, progressed rapidly and with little loss.

At the foot of the glacis, Vauban constructed his third and last parallel,* in which were placed batteries of small mortars, and other pieces of short range, but multiplied effect. This parallel, being at the lowest point of the glacis, did not interfere with any of the more distant batteries, so that a combined

* It is supposed that Vauban derived his system of parallels from a study of the Turkish siege operations in Candia.

and concentrated fire could be uninterruptedly maintained against the devoted place.

When expedition was urgent, and the guns of the defence had been reduced to silence, Vauban crowned the covered way by open force; but he was usually more prodigal of time than of his soldiers' blood, and preferred slower and less costly means. Within thirty yards of the crests of the covered ways he raised earthworks, called trench-cavaliers, the fire from which plunging over the parapets drove the defenders behind the first trenches of the two branches: then pushing on his approaches by sap, he easily gained possession of the salients, and by spreading out to the right and left, he gradually embraced all the covered ways, and rendered them untenable by the enemy. Without loss of time he proceeded with his breaching batteries, and the descent into the ditch, not neglecting the counter-batteries necessary to protect them from the flank fire of the place.

The effect of these improved methods was to render the progress of an attack as certain and secure as it had hitherto been precarious and dependent on the vigor of the defenders. Maestricht, one of the strongest fortresses in the Low Countries, succumbed after thirteen days of open trenches, with a loss to the besiegers of one tenth the ordinary proportion. The reputation of Vauban was made. None disputed his superiority, while few paused to examine the causes of his success: and the conduct of siege operations, hitherto one of the proudest functions of a general, now pronounced too intricate for ordinary minds, was in future submitted to the undivided control of

Vauban, and after him of a school.* Yet Vauban, like all great reformers, came to simplify as well as to improve. The art of sieges, subject to clearly defined principles, became easier of comprehension, and in practice less open to the influences of accident and of error.

Vauban did not rest satisfied with the great results obtained at Maestricht. Having changed the nature of siege works, he next changed the nature of the artillery fire employed under their cover. After some successful experiments before Philipsburg in 1688, he fully developed his new system at the siege of Ath in 1697.

Instead of opening a direct fire at high charges, which did more harm to the interior of a town than to its defences, he established his batteries on the prolongation of, and as far as possible perpendicular to, the lines which he wished to silence, so that his fire swept along their whole length, or as it is technically termed, enfiladed them.

In order to give to this fire so advantageously directed the greatest possible effect, he reduced the

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* 'Why,' says Bousmard, 'this abandonment of the science of fortification to a particular branch of the army? Why the utter ignorance of general officers on the subject? Why should what has been studied by great men as a science be despised by modern generals, and abandoned to the hands of a few as a vulgar method?' It appears reasonable that while the execution of details should be left to a specially educated body of men, yet the general scope of works and siege operations, as they must harmonize with all the other plans of the commander-in-chief, should also emanate from him. Who but he can settle the amount of disposable force, the limits of time imposed, and the nature of sacrifice due to rapidity?

charge, and increased the elevation of his guns, so that a shot, dipping over the crest of the parapet, bounded and rebounded along the line, dismounting guns, and sweeping away the gunners. It is evident that these ricochet batteries, as they were called, could not be assailed from the lines which they commanded, whilst, although separated by great distances, they afforded to one another a powerful and mutual support. Thus was first solved by Vauban one phase of that important problem, which, whether in sieges or in the field of battle, in attack or in defence, must at all times, and under every system, preoccupy the artillery officer.—How to exert the greatest force upon a given point by a concentration of fire obtained from a dispersion of guns.*

The success which attended this new description of fire was so marked as to cause its adoption in all future siege operations, and thus was still further destroyed the equilibrium between the attack and defence, which had been disturbed by the invention of parallels. The progress of sieges became more and more rapid, the average duration of those carried on by Vauban being estimated at ten days, whilst that of the revolutionary period, when works of defence had been multiplied and elaborated, is not supposed to exceed twenty-three days.

* This principle, adopted by Vauban in his attacks, was also employed by the Russians in the defence of Sebastopol, where the great lateral development of their works enabled them to concentrate the fire of distant batteries upon any point of the besiegers' approaches. The converse of this principle—viz., a concentration of guns, and a consequent dispersion of fire, appears to be advocated, upon questionable grounds, by Mr. Fergusson in his much discussed system.

Unfortunately, Vauban was employed rather in besieging than in defending places, so that he has left us no model capable of resisting the new influences which he himself had brought into play. It is true that in his last constructions he attempted to screen the body of the place against ricochet firing; but in this he was only partially successful. His counter-guards were much exposed, his casemated batteries were kept down by their own smoke, and the erection of earthen traverses between the guns can at best be only regarded as a makeshift.

Yet Vauban was not inactive on the side of the defence; his works were always in perfect harmony with the configuration of the ground, the prolongation of his lines being often made to fall on marshes, inundations, and impracticable sites. He strengthened the demi-lunes or ravelins by interior redoubts, and increased their size so as fully to cover the flanks and shoulders of the bastions. He substituted the useful tenaille for the dangerous fausse-braie,* and constructed horn works beyond the glacis of the place.

It is to be regretted that Vauban did not bring to perfection the system of casemated batteries which he had imagined, as in them probably will be found the true means of opposing ricochet and vertical fire. Cormontaigne, instead of removing only their defects, adopted the more summary plan of removing the

* The one and the other low works in the ditch covering the curtain. The fausse-braie being close under the scarp, was exposed to its masonry splinters, and, moreover, might be used as a ramp by the besiegers, which was not the case with the tenaille, separated as it was from the scarp by a considerable interval.

casemates themselves; but advocated by such authorities as Napoleon and Paixhans, and daily finding greater favor in practice, we may look forward to their being recognised at no distant day as an important part of every well considered scheme of permanent fortification.

Having carefully elaborated the actual defences of a place, Vauban looked around beyond its limits. He seized upon whatever water was at hand, and employed it as a means either of communication or of inundating the enemy's works, and the surrounding country. He raised entrenched camps in the neighbourhood, and thus increased the importance of fortresses by rendering their attack impossible without the development of great means.

With Vauban, each single fortress was but a unit in the vast scheme of national security and power ever present in his mind. He embraced all possible hostile combinations. He anticipated every requirement of his country. It was his wish to diminish the number of frontier fortresses, as tending to weaken by dispersing the army, and to fortify Paris, that vital point, itself. Later experience has shown the wisdom of this plan, the latter part of which has been carried out in our time, whilst every day we shall behold scattered frontier works become less numerous and less important.

Vauban is said to have been present at one hundred and forty actions, and to have conducted fifty-three sieges; besides designing, tracing, and constructing thirty-three new fortresses, and remodelling upwards of three hundred old ones. Of him it was well said, 'such services are to be weighed, not numbered,' and he

nobly earned his title of 'the first of engineers and best of citizens.' Two centuries have passed away since he first gained distinction in the French service, yet no one has risen up to dispute his pre-eminence. It is true the cry has often been heard 'Vauban's system is antiquated—obsolete—out of date!' Yes: if to a system be given so narrow a meaning as the precise arrangement of details and dimensions, which must necessarily vary with the ever varying agents of destruction. But Vauban's fame rests upon a wider base; it rests securely upon great principles first developed by him, which, like those of Epaminondas and Alexander, may defy the progress alike of time and of improvements.

# CHAPTER V.

Expansion of Military France under Louis XIV.—War of the Spanish Succession—Marlborough—The Dutch Deputies—Magnificent Plan of Campaign sketched out by Louis in 1704—It is discovered and thwarted by Marlborough—Donauwort—Manœuvres on the Danube—Junction of Marlborough and Eugene—Blenheim—Eugene's Relief of Turin—At Pultowa, Peter the Great substitutes Redoubts for Continuous Lines—Marshal Saxe viewed as a General and as a Military Writer—Fontenoy—Gribeauval creates Modern Field Artillery—Robins developes the Science of Gunnery—He recommends the Use of Elongated Projectiles Fired from Rifled Bores—Frederic the Great—His Reforms—He organises Light Cavalry and Horse Artillery—He superintends the Education of his Staff—Campaign of 1757—Rosbach—Leuthen—Napoleon's Estimate of Frederic.

THE opening of the eighteenth century beheld all the nations of Europe either actually engaged in or preparing for war. In the north, the Russians and Swedes were contending under Peter and Charles the Twelfth; in the south, the Turks threatened to burst through the barriers of Christendom; and in the centre, Louis XIV. had converted France into one vast camp, where every energy was devoted, and every talent attracted towards the single object of military aggrandisement.

In order to measure the extraordinary efforts made by Louis, let us compare the amount of his forces with those of Henry IV., certainly not an unwar-

like sovereign. At the death of Henry, the national army consisted of 37,000 men, recruited by voluntary enrolment, and 400 guns, a respectable, and for defensive purposes, an adequate force, which Louis, resorting to compulsory conscriptions, multiplied until it exceeded 400,000 men, and 7000 guns; thus taking the lead in that ruinous race of vast standing armies, which even now oppress with their leaden weight the industry and energies of continental Europe.

But numbers alone can imperfectly describe the resources of Louis. Vauban, his engineer, had produced a complete revolution in the art of fortification. Artillery was cultivated as a science in a special school, founded at Douay in 1679. The cavalry were taught to rely more on their swords and less on their fire; and the infantry had finally abandoned the pike for the more deadly combination of the musket and socket bayonet.* Whilst each separate branch of the French army was thus improved; large masses were frequently united and exercised in camps of instruction, not less than 70,000 men being at one time engaged at Compiègne during the year 1698, in all the operations of mimic warfare.

This immense growth of the French military power,

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* So called to distinguish them from the earlier bayonets introduced into France about 1671, and attached by the clumsy contrivance of wooden handles thrust into the muzzle of the pieces. Although the ordinance abolishing pikes was only published in 1703, they had in reality fallen into disuse after the terrible havoc caused at the battle of Marsaglia, in 1693, by bayonets attached according to the method now employed. Flint locks were generally adopted about the same date.

together with the ambitious designs which it was clearly intended to support, at length roused the independent states of Europe. The disputed Spanish succession furnished the pretext for a coalition, of which Austria, England, and Holland were the principal members. War was declared. Marlborough assumed the command in the Low Countries, while Prince Eugene, of Savoy, at the head of an Imperial army, penetrated into Italy through the defiles of the Noric Alps.

Notwithstanding the numerical superiority of France, swelled as her forces were by those of Spain, Italy, Flanders, and Bavaria: notwithstanding the great advantages of her central position, of that triple line of fortresses either conquered or constructed by Vauban, and of that bulwark which she then virtually possessed, and has ever since coveted, the boundary of the Rhine, yet the opening campaigns, both in the north and south, were unfavorable to her arms.

In Italy, Catinat and Villeroi were found to be no match for Eugene, who, crossing the Adige, defeated the French and Spanish forces at Capri and Chiara, and drove them in confusion beyond the Oglio.

In the following summer, that of 1702, Marlborough was in the field at the head of 60,000 men, and assisted by the talents of Coehorn, the great Dutch engineer, who, if inferior in genius and originality to Vauban, was almost his equal in the practice and detail of siege operations.

Kaiserworth, an important post on the right bank of the Rhine, together with Ruremonde, Venloo, and Liege, commanding fortresses on the Meuse, were successively wrested from the French, and secured

to the Allies the resources of a rich tract of country, and a favourable base for future offensive operations.

But although the reverses sustained by Louis in the Netherlands during this and the following campaign exerted, in addition to their material results, a most depressing influence on his prestige, they were far from satisfying the bold aspirations of Marlborough.

In receiving the command of the allied armies, he had also been forced to accept a distinction of a less enviable nature; this was a perpetual escort of Dutch Field Deputies—civil commissioners possessing extraordinary powers, wholly ignorant of war, yet prying, jealous, and opiniated, who were ever at hand to thwart the ablest designs or to blast the fruits of victory.

Eager to escape from such oppressive thraldom, and conscious that the power of France could never be shaken by a mere war of posts, Marlborough beheld in the threatening aspect of affairs in Germany, not less than in the betrayed plans of Louis, the urgency of larger combinations and more vigorous action.

In the early spring of the year 1704, the Elector of Bavaria commanded 45,000 men in the neighbourhood of Ulm, while Marshal Tallard was at the head of an equal force on the Upper Rhine, the passages over which he had gained in the previous campaign. No obstacles prevented the junction of these two armies, which might at any time combine and pour down the valley of the Danube, sweeping before them the paltry levies of Austria, then a prey to her chronic foes, national bankruptcy, and Hungarian insurrection.

Such a combination did, in fact, form a part,

but only a part, of the colossal design by which Louis hoped to crush at least one member of the coalition. Never did that monarch appear greater than when sketching out the plan of a campaign, destined to prove, beyond all others, disastrous to his arms. That plan embraced the whole zone of conflict, extending, as it did, from the shores of the North Sea to those of the Adriatic. Tallard and the Elector of Bavaria were to unite on the Upper Danube, while Villeroi from the north and Vendome from the south, leaving sufficient forces to amuse the enemy in those quarters, were to hasten with every disposable man towards the common centre, and form respectively the right and left wings of one vast and irresistible array.

This splendid conception, anticipating and certainly not inferior to that of Napoleon in 1805, was betrayed to Marlborough, who spared no means of penetrating his enemy's designs. At a glance he saw that, striking as it did at the heart of the coalition, its success—and what ordinary mind could question its success—would prove fatal to the common cause.

In a moment his resolution was taken. Rapidly concerting with Prince Eugene a junction of their armies in Bavaria, and having gained, or rather extorted,* the consent of the various governments to as much of his plans as he thought prudent to disclose, Marlborough turned his back without regret on Holland, its tedious delays and more tedious deputies, to enter upon that celebrated march, which, as an

* Marlborough said of the Dutch Government that he was generally obliged to cheat them into victory.

example of successful audacity, stands to this day in history almost without a parallel.

On the 16th of May he left Maestricht, and proceeding towards Bedburg, which had been selected as a rendezvous, he crossed the Moselle and Rhine at Coblentz on the 26th; he ascended the right bank of this latter river, marched on the Neckar, which he passed on the 3rd of June, near Ladenbourg, and again at Lauffen on the 9th, and reaching Mundelsheim on the 10th, he halted in its neighbourhood for three days, and was there joined by Prince Eugene.*

It was arranged, through the influence of Prince Louis of Baden, who insisted on his superior rank, that he should combine with Marlborough in attacking the Elector of Bavaria on the Danube, whilst upon Eugene devolved the less grateful task of watching with a far inferior force the movements of Tallard on the Upper Rhine.

In pursuance of this plan, Marlborough, disregarding the importunities of the Dutch government, who wished now to recall their troops, resumed his march towards the South-East. After a delay of ten days, caused by the Prussian contingent, and having penetrated the narrow defile of Gieslingen, he formed a junction with Prince Louis, on the 22nd, and found

* During this rapid and arduous march the greatest cheerfulness and order prevailed in the English army. Marlborough thus wrote to England; 'Notwithstanding the continual marching, the men are much pleased with this expedition:' and such was the neatness of their appearance, that a German Prince, who reviewed them, said they looked as if prepared for a ball. These facts may be weighed against the often-repeated assertion that English troops, however well they may fight, lose their discipline in long and severe marches.

himself on the 2nd of July at the head of a decidedly superior force, in presence of the Elector's army, which was strongly intrenched so as to cover the passage of the Danube at Donauwort.

It may be well here to pause for a moment and consider the great advantages already secured by Marlborough, even before a single blow had been struck in this most important campaign.

The Elector of Bavaria's army was the very foundation upon which Louis had based his project for the annihilation of Austria. Viewing it as a centre, Tallard became the reserve, as Villeroi and Vendome formed the wings of a colossal force, which, having united in secrecy, was to strike a vital blow at defenceless Vienna, while Marlborough was amused and kept in check by a war of posts in the Low Countries. Such, it has been said, was the monarch's intention. Alas! how great the fall from thence to poor reality. Here was Marlborough, the intended dupe, having himself outwitted Villeroi and left that bewildered general far away on the Moselle, while Vendome was struggling through the Tyrol, and Tallard manœuvring on the Rhine. Here was Marlborough ruling at the head of a splendid army, in the very focus of these vast designs, and with uplifted arm, prepared to shatter the key-stone itself of this triumphal arch.*

On the afternoon of the 2nd of July, Marlborough,

* A slight parallel to this anticipation and defeat of the enemy's plans by Marlborough, may be found in the recent battle of Solferino, where the Austrians, while deliberately advancing in order to surprise the French, were themselves suddenly attacked and forced to engage at a disadvantage.

although his troops were much fatigued by a toilsome march of eleven hours, ordered a general assault on the Elector's position. After a stubborn resistance, the intrenchments of Donauwort were carried, the enemy driven in confusion across the Danube, and the free passage of that river was secured to the victorious army. Rapidly pursuing this first advantage, Marlborough crossed the Danube, occupied the Elector's dominions on its southern bank, and compelled that prince to take refuge under the cannon of Augsburg.

In the meantime, Tallard, who, like Villeroi, had been paralysed by demonstrations which each imagined were directed against himself alone, at length awoke to the realities of his situation; and collecting all his troops from the left bank of the Rhine, he penetrated the Black Forest without difficulty, and effected a junction with the Elector's army at Biberach, whilst Eugene, by a nearly parallel line of march, arrived at Hochstadt, on the northern bank of the Danube.

The French and Bavarian army now proceeded northwards, forded the Danube at Moeskirch, and would seriously have threatened Eugene's isolated position, if Marlborough, following these movements, had not also re-crossed the river and united his forces to those of the Austrians.

This concentration of the two opposing armies in a narrow space clearly foreboded a general action, and accordingly, on the 13th of August was fought the battle of Blenheim, more decisive, whether it be estimated by its immediate results or by its influence on future ages, than any contest of the eighteenth century.

Although the forces engaged in this battle were

not very unequal; yet the advantage in every respect was with Tallard and the Elector. Their army consisted of 60,000 men, of whom nearly three-fourths were French, and ninety pieces of artillery; while Marlborough and Eugene could only number 56,000, made up of various contingents, and fifty-two guns. On each side the proportion of cavalry was large, and the superiority in artillery derived increased importance from the nature of the ground.

Notwithstanding their preponderating forces, the Gallo-Bavarian army took up a defensive position, covered in front by the stream and marshy banks of the Nebel, a little tributary of the Danube. On this latter river rested Tallard's right, having the fortified village of Blenheim in its front, while the remainder of his army, formed on two lines, stretched along some heights until the cavalry of his left wing joined the Elector's right, also composed of horse, which were thus unskilfully placed in the very centre of the line of battle. Oberglau, which commanded the passage of the Nebel about two miles above Blenheim, was strongly occupied, and the artillery was distributed along the whole front of this formidable position, the left of which was secured by the village of Lutzingen and a range of rugged heights.

In advancing to the attack Marlborough had recourse to the same system which marked all his combinations throughout this campaign. Having selected what he believed to be the truly decisive point, he, by a series of demonstrations and false attacks, induced the enemy to weaken or unfurnish it. Then, rapidly striking home with concentrated forces, he rarely failed to gain a brilliant and decisive result.

On this occasion his selected point of attack was

that part of the enemy's line, composed chiefly of cavalry, which, being equally distant from the villages of Blenheim and Oberglau, was also equally beyond the protection of their fire. In order to divert attention from this capital point, Eugene moved forward with the right wing, consisting chiefly of cavalry, and warmly engaged the enemy, while in the centre and extreme left strong divisions of infantry were directed against Oberglau and Blenheim.

Under cover of this triple attack, and supported by a powerful artillery fire, Marlborough descended to the edge of the Nebel with the troops of his left centre. The infantry who were in front having gained possession of a small bridge, rushed across it, and immediately began to deploy* on the further side, while the cavalry, protected by the fire of this advanced body, commenced the passage of the stream at several points, with the aid of planks and fascines which they had brought with them.

Not without immense difficulties, arising from the branching of the stream, the numerous ditches, and the treacherous nature of the ground, was this passage at length effected; but when, at five in the afternoon, Marlborough beheld the whole of his left and left centre firmly established beyond the Nebel, he felt that, although Blenheim still held out, although his columns had recoiled from Oberglau, yet victory was secure. 8000 horsemen drawn up on two lines now formed the front of his array, the battalions of infantry and the artillery being in support. The whole

* The English infantry of this period was formed three deep, while the depth of the French varied from four to six ranks.

mass with admirable precision slowly moved up the slopes, and by their concert and steady valor decided the fate of this eventful day. The French centre, composed chiefly of cavalry, could make no head against the successive and well-supported charges by which they were assailed, but turning about in dismay they galloped from the field, leaving the remainder of the army to escape as best they might from a position which had now become desperate.

The French line being thus pierced and cut in two, Marlborough had only to stretch forth his hand and gather the fruits of victory. His squadrons, wheeling outwards, fell on the exposed flanks of the battalions which still held their ground. Tallard was taken prisoner, and the greater part of the troops who had so nobly defended Blenheim and Oberglau were surrounded and forced to yield.

Perhaps the great results of this victory may be best collected from the following summary by Voltaire:—'Such,' he says, 'was the celebrated battle which the French call the battle of Hochstet, the Germans Plentheim, and the English Blenheim. The conquerors had about 5000 killed and 8000 wounded, the greater part being on the side of Prince Eugene. The French army was almost entirely destroyed: of 60,000 men, so long victorious, there never re-assembled more than 20,000 effective. About 12,000 killed, 14,000 prisoners, all the cannon, a prodigious number of colours and standards, all the tents and equipages, the general of the army and 1200 officers of mark in the power of the conqueror, signalized that day!'

The remnant of the French army retreated, or rather, to use Marlborough's own expression, fled

through the Black Forest, and recrossed the Rhine at Strasburg. Ulm, Landau and all the Elector's dominions fell into the hands of the victors, who went into winter quarters on the Moselle, and thus first taught the aggressive Louis to tremble for the safety of his own frontiers.

The battle of Blenheim has been the subject of much discussion and criticism among military writers. Feuquières has drawn up a list of twelve capital faults committed by Tallard, thus forming so many counts of an indictment against that general, whom he hated bitterly; yet it must be owned that his remarks are based upon sound judgment. He ascribes the defeat of the French and Bavarians, amongst other causes, to the two armies having encamped as if they were to engage separately; to their not having sufficiently reconnoitred their position and the adjoining ground; to their not disputing the passage of the Nebel; to their centre being composed almost exclusively of cavalry, and to their best battalions being huddled together in the villages, where they could do nothing, instead of opposing the enemies' advance in the open field.

That Tallard proved himself lamentably inferior to Marlborough and Eugene cannot be disputed. The same power which had kept him riveted to the Rhine while the Danube was the real centre of conflict, seemed again to fascinate him, and to prompt the fatal imprisonment of his choicest hopes in Blenheim, while their fate—the common fate—was being decided elsewhere. But far from diminishing, this, in reality, adds to Marlborough's merit. His was the power, his the superior force of mind which, brought to bear upon the enemies' councils, swayed them to

and fro in obedience to his own will. Of all the characteristics of a great general, none is more decisive than this moral ascendancy acquired over the enemy, which, although never openly acknowledged, is yet everywhere to be traced throughout their feeble measures and designs.

Marlborough was fifty-four years of age when he gained this his first and greatest victory. His is perhaps the only instance of a general succeeding so late in life to the chief command, and raising himself at one spring to the very foremost rank of commanders. Few campaigns have been carried on under such difficulties, or have been so clogged by intrigues and petty jealousies as that of Blenheim. Yet, throughout all history, where shall we seek for its superior.

If justice has been sometimes altogether denied,* and sometimes but grudgingly doled out, to Marlborough, we may find the reason partly in his blemished private character, but chiefly in the all-powerful influence of French military literature: an influence which, if restricted to the deeds of French generals might be very legitimate, but which we may fairly call in question when it is used to prop up and glorify such mediocrities as Catinat and Villars at the expense of men like Gonsalvo, Marlborough, and

* Napoleon does not include Marlborough among the commanders whose campaigns should be studied by military men; but although he strives hard to conceal the admiration which every soldier must feel for this great man, it bursts forth when he wishes to disparage Wellington. 'How different,' he says, 'from Marlborough, of whom he seems to consider himself the rival and the equal. Marlborough, while he gained battles, ruled cabinets and guided statesmen.'

Wellington, whose splendid careers are only to be traced through long series of French reverses and disasters.*

Throughout all his campaigns Marlborough, besides political difficulties, had constantly to struggle against the lukewarmness, the insubordination and sometimes even the treachery of generals who were, to a certain extent, independent of his control, jealous, narrowminded men, whose ideas of strategy were all centred in that last resource of mediocrity, a council of war. At times, as in 1705, he was borne down by this deadweight of lethargy and disaffection; but it was only to rise again with all the buoyant ascendancy of a superior mind, and to silence his detractors by the splendour of his achievements. His military acts, like those of every master-hand, bear stamped upon them the impress of original creative genius. As bold and comprehensive as Turenne in the larger combinations of war, he was animated in the field by the chivalrous intrepidity of Condé and Gustavus. He rarely abandoned the initiative. He loved to close and

* It is to be regretted that some English military writers should be content to take not only their facts, but their very tone and ideas at second hand from the French. When they slur over the magnificent march of Marlborough with the dull remark that the plans of that period were generally characterised by very contracted views, they cannot, like the French, urge the plea of pardonable national vanity. These, indeed, do not attempt to disguise their partiality. One of their best professional writers, Rocquancourt, after glossing over a number of English triumphs, thus candidly concludes: 'I might cite another example, but as I should have again to show the English victorious, and to recal a disaster as great as the preceding ones, I prefer to maintain silence.' This is, indeed, candour!

grapple with the enemy: but even in the heat of action he would still disconcert them by feints and demonstrations. He made greater use of stratagems and false attacks than any general since the time of Hannibal, whom he further resembled by dealing his decisive blows at the head of large cavalry reserves. He well knew the value of a concentrated artillery fire, and considering the very small proportion of this arm which then entered into the composition of armies, his advancing forty pieces in line to bear upon a decisive point at Malplaquet, may be ranked with the greatest efforts of Napoleon at a period when artillery was much more numerous. Having gained a victory—and he never failed to gain one—his first care was for the wounded, not only of his own but of the defeated army:—'The Duke of Marlborough,' says Duclos, a French historian, 'always showed the utmost attention to his prisoners, and set the example of that humanity which has since softened the horrors and calamities of war.' A noble tribute from an enemy,* well-deserving to be placed side by side with the lines of our own poet, which thus conclude—

> 'So when an angel, by Divine command,
> With rising tempests shakes a guilty land—
> Such as of late o'er pale Britannia past—
> Calm and serene he drives the furious blast;
> And pleased the Almighty's orders to perform,
> Rides in the whirlwind, and directs the storm.'

* Throughout France the peasants, more just than the historians, hand down the name of Marlborough from father to son in a ballad, which, rude and homely though it be, yet speaks of past terrors and present fame. Napoleon hummed 'Malbrook s'en v'a't en guerre' as he led his army to the invasion of Russia.

At the battle of Blenheim, Prince Eugene—that worthy compeer of Marlborough—had, in skilfully executing his allotted task, found no scope for his great abilities; it was not until the year 1706 that his brilliant march and victory under the walls of Turin firmly established his reputation, and entitled him to rank with the foremost of modern generals.

In the previous year, Eugene had attempted to penetrate through Lombardy into Piedmont, and form a junction with his relative, the Duke of Savoy, whose position, threatened on all sides by superior French forces, was becoming desperate. With this view, he had advanced to the Adda, where he was checked by Vendome at the battle of Cassano, and compelled to fall back on the mountains of the Tyrol. His diversion, however, had not been altogether useless; it had suspended for another year the fate of the Duke and what remained of his dominions.

Vendome, having foiled this first attempt of Eugene, and knowing what disastrous consequences would have followed its success, spared no effort to improve his advantage. He secured all the fords of the Adige, the Mincio, and the Oglio, and by intrenchments and lines so fortified his central position as, in his opinion, to place beyond the range of possibility any westward march of the Imperialists. In May, 1706, the same month which witnessed the battle of Ramilies, Turin was regularly invested by the French; strong lines of contravallation and circumvallation were raised, and the siege-works were prosecuted with extraordinary vigour. The Duke of Savoy abandoned his capital, and took the field with a small force of cavalry, placing

his last hope—and it appeared a frail one—in Eugene, and his ability to overcome the almost insurmountable obstacles which lay across his path.

In the same spirit as Marlborough from his camp on the Meuse had watched the storm gathering over the valley of the Danube, so did Eugene, from the fastnesses of the Tyrol, anxiously survey the progress of the French around Turin. He saw that the capture of that town, which, although now perfectly open, was then a commanding fortress, would prove fatal to the Imperialist cause in Northern Italy; and he determined to make one vigorous effort to avert the threatened calamity. Having received a long-expected reinforcement of 10,000 men, in the middle of July, Eugene broke up his camp, and marched from Trent, in a south-easterly direction, down the left bank of the Adige. He passed that river, ascended the left bank of the Po, which he also passed with the bulk of his forces, gained the defile of Stradella, crossed the Tanaro in presence of the Duke of Orleans and a French army, and effected a junction with the Duke of Savoy in the neighbourhood of Turin. The combined force then moved across the Po, and by a flank march arrived in front of the French army, which occupied a strongly intrenched position, having the Stura on its right and the Doria on its left.

On the 7th of September, eight columns of attack were formed, and advanced under a terrible fire from forty guns against the French lines, which were carried, after a desperate resistance, the infantry entering first, and then levelling the parapets, so as to admit the cavalry. Marshal Marsin, who commanded the French, was mortally wounded, 6,000 prisoners

and nearly 200 cannon fell into the hands of Eugene, who entered Turin in triumph on the very day that the breaches were declared practicable; and the last powder of the garrison was employed to fire a salute in his honor. The remainder of the French troops hastily fled beyond the Alps, and thus confirmed the triumph of Eugene, who, in less than two months, with a force rarely exceeding 30,000 men, had passed all the chief rivers of Northern Italy, either in the presence or neighbourhood of a superior army, occupying a central position, which army he had finally attacked and routed when covered by intrenchments and natural obstacles of the most formidable kind. Well might Napoleon say, 'This is a masterpiece of daring enterprise.'

The battle of Pultowa, fought in 1709, is scarcely less interesting to military men from the celebrity of the rival commanders, than from the revolution it effected in the description of field-works then so much in vogue.

Charles XII. had successfully overrun the greater part of Poland and Russia; but he had displayed rather the intrepidity and dash of a cavalry-leader than the cool circumspection of a general. He neither, like Hannibal, boldly cut himself adrift, and created fresh bases of operations in the conquered country; nor did he, like Gustavus, preserve direct and secure communications with Sweden. He steered a middle course, which constantly exposed him to the risk of being cut off from his resources, and his convoys could only move under the escort of large detachments, which were liable to be overwhelmed in detail. It thus happened that his victories, however brilliant,

were followed by most inadequate results; while his troops, always successful in the field, were harassed and wasted away; and hence, when he turned from the siege of Pultowa to confront the relieving army of Peter the Great, he met a force not only twice as numerous as his own, but also in every respect better equipped and supplied.

The position selected by the Czar extended from the Borysthenes to its tributary the Vorskla, and his front, which was covered by seven large redoubts, mounted with heavy cannon, faced the junction of these rivers; so that the Swedish army, in the event of defeat, would be driven and cooped up into the acute angle thus formed in its rear.

Charles, with his usual intrepidity, advanced to the attack, and succeeded in carrying two of the redoubts, which were, however, recovered by the Russians after a determined struggle. It was in vain that Charles attempted to penetrate through the intervals; a terrible fire mowed down his troops, who recoiled in disorder from the attack. The Czar, following up his advantage, led his first line beyond the works, and pressing on the discomfited Swedes, converted their retreat into a rout. Driven towards the confluence of the two rivers, the whole army was either destroyed or taken prisoner, with the exception of Charles, Mazeppa and a few followers, who swam the Borysthenes, and escaped into Turkish territory.

Although the Russian troops displayed the greatest gallantry on this occasion, yet their success has been generally attributed to the foresight of Peter, in covering their front with detached works, which, without impeding their movements, served to check

the first fiery onslaught of the Swedes, which, like the 'Furia Francese,' in the Italian wars, had so often proved fatal to their enemies. Before this time, it was the custom of timid generals—and they were many—to bury themselves, like moles, under vast and continuous lines of intrenchments, which, however, were rarely found to afford the expected security. Marlborough made little use of such works, and his invariable success against those of the enemy, together with that of Eugene at Turin, seemed to point out the weakness of this method of defence, resting on unbroken lines, which, involving a vast amount of labour in construction, and requiring to be manned by very considerable forces, were equally strong at all points, because really so at none. The strictest vigilance of the defenders, distributed over an immense extent of ground, could rarely guard against a well-concerted surprise; while one single attack, if successful at once, exposed the whole line of defence to be turned and taken in reverse. Far superior, then, to such a system, was that of detached works, first developed by Peter on the field of Pultowa. His redoubts, skilfully constructed, supported one another and the whole position, and far from cramping—as did continuous lines—the movements of the troops which they were intended to shelter, they rather facilitated them by affording so many pivots and flank defences, and equally covering their advance or retreat. Such an innovation entitles Peter to be ranked as the Vauban of field fortification. His principles, always highly esteemed, were never more so than in our own day. They are the principles of Torres Vedras, of Paris, of Sebastopol; principles in fine, which have

always been attended with success, and which in future it will be dangerous to neglect.

The combination of military talent and efficiency which had marked the opening years of the eighteenth century, passed away with the great occasion which had given it birth. In France, especially, the exhaustion following on the protracted war of succession produced the worst results, and a general decline might be observed in every department of the army and its administration.

Marshal Saxe, who commenced his military career under Eugene and Marlborough at the early age of twelve, entered the French service in 1722, and writing towards the middle of the century, has left us a most melancholy picture of French discipline and conduct, as exemplified in the German wars. 'All the troops,' he says,* 'enter on a campaign well equipped and in fine order; yet without fighting any general action they return ruined, disorganized, and having lost a vast proportion of officers and men. All the detachments are surprised and cut to pieces. The soldiers, intent on pillage or simply on escaping from their officers, are allowed to desert with impunity; and commanders are not ashamed to own that they cannot restrain their men. When the enemy appears they can neither form nor defend themselves; and if by chance an order is given, which rarely happens, it is listened to by men who understand neither military exercises nor the obedience and respect due to their officers; they fire in the air, and are beaten as a

* These remarks are very much abridged; but I hope their spirit is preserved.

matter of course. Whoever has not seen the Prussian army can form no conception of its high degree of exactness and discipline. At the battle of Dettingen* we saw the enemy's troops manœuvre with astonishing order, although they had no experience of war; but few amongst us reflected that this firmness was the effect of discipline, because few could appreciate its intrinsic value.'

Although Marshal Saxe owes his celebrity as much to his writings and reforms as to his campaigns, he was unquestionably one of the most successful generals of his time, and had it been his fortune to command better disciplined troops, he would probably have attained a very high degree of eminence. At the battle of Fontenoy, which, with only slightly superior forces, he gained over the English, Dutch and Allies in 1745, he exhausted every art in selecting and strengthening his position. His right rested on the Scheld and the village of Antoin, his centre was massed in and around Fontenoy, and his left stretched away as far as the woods of Barri and the hamlet of Gauram. This line was naturally of great strength, which was increased by several redoubts† thrown up, more especially on the left and left centre so as to bring a cross fire to bear on all the most important points.

* Gained by the English and Austrians over the French and Bavarians, in June, 1743. King George II. and the Duke of Cumberland distinguished themselves at the head of the English troops; but the merit of the victory was generally ascribed to the judgment and forethought of Lord Stair.

† Saxe owns himself indebted to Peter the Great for the idea of strengthening a position by redoubts, which, in common with Napoleon, he considers by far the best description of field-works.

The Duke of Cumberland, who commanded the English and Hanoverians on the right of the allied line, and who may be said to have fought the battle altogether unaided by the Dutch, prepared to attack at dawn. His plans, although doomed to failure, were well concerted; and as the English troops in this, one of their few defeats, covered themselves, by the admission of their enemies, with unwonted glory, so their commander displayed on the same fatal field a power of forethought and combination which may be vainly sought in his more successful engagements.

That part of the French lines which he selected to force was the open space between the village of Fontenoy and the nearest redoubt on its left. The principal attack on this point was to be supported on one side by an English force under General Ingoldsby directed against the flanking redoubt, on the other by the Hanoverians, under the Prince of Waldeck, who were to assault Fontenoy, while General Campbell was ordered to cover the movement with fifteen squadrons of cavalry; and it was naturally hoped that the Dutch and Austrians, on the left, by keeping the enemy engaged, would effect a powerful diversion in that quarter.

If we consider how nearly fatal to the French was the execution of one portion only of this plan, we may easily conceive what would have been its results if the other, and scarcely less important part, had not entirely miscarried. But with one glorious exception everything was failure and disappointment. The Dutch and Austrians, after a feeble and fruitless attack on the village of Antoin, limited their efforts

to a distant cannonade. Ingoldsby,* either hesitating of his own accord or perplexed by cross orders, did nothing. The Hanoverian assault on Fontenoy, though gallantly made and repeated, was always repulsed; and General Campbell, being desperately wounded, was unable either to execute his orders, or explain them to his successor.

But heedless alike of their own peril and of surrounding disaster, the English infantry, formed in three dense lines, and preceded by a few guns, press forward to the opening between the village and the redoubt. In vain a concentrated fire of artillery is opened upon them; in vain the bravest of the French Guards are sent to oppose their progress: reserving their fire till within thirty paces of the enemy, they throw in one withering volley, which strews the plain with 600† bodies, and then continue their advance with all the coolness and precision of parade. The enemy's line is now pierced, and their choicest infantry driven in disorder up the hill, whilst the advancing mass, wedged by the narrowing of the ground into one immense column, crowns the heights behind Fontenoy. Fresh batteries are brought to bear upon it, fresh regiments, the flower of the French cavalry, are hurled against that terrible column, but nothing can withstand its fire, nothing can arrest its slow and measured progress: the Horse Guards, the Gendarmerie, and the Carabineers successively charge, and

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* Most contradictory versions of this general's conduct have been given.

† This number appears incredibly large; but it is according to the French version of the battle, to which I have chiefly adhered.

successively recoil with shattered ranks. The Marshal himself believes everything lost; he advises the King to quit the field, and seeing the enemy almost in his camp, he prepares for a general retreat.

The manœuvre of Blenheim had been repeated; the French, still maintaining themselves in the villages and intrenchments, had been defeated in the open field. Their position had been pierced, and turned; but where was the master hand to reap the fruits of this success? Where was the English cavalry, which Marlborough knew so well how to launch forth at the decisive moment? And above all, where were the Dutch?

Such are the questions which we may now ask, and such probably occurred to the gallant and forsaken band, which having of itself defeated almost an entire army, and triumphed over every obstacle, now found itself weighed down by the very greatness of its success. Advanced far beyond the protecting fire, and in a great measure beyond the view of the army to which it belonged, ploughed up from flank to flank by incessant discharges of artillery, and harassed on all sides by the French horsemen, who, unable to make sustained charges, now attacked in skirmishing order, it long maintained its ground. At length, seeing no prospect of support, it began slowly to fall back. 'It retreated,' says the French writer, 'with calmness, without confusion, without disorder,' and rejoined the remainder of the army which had so ill seconded its noble efforts.

Such was the battle of Fontenoy, in which the English infantry, although defeated with great slaughter, gained more credit throughout Europe

than they had done in many victories. Marshal Saxe, too honest and frank to raise either himself or the country of his adoption at the expense of justice, thus comments on this battle in an official report to the Minister of War. 'At Fontenoy, our infantry in the field was broken, while that which was posted maintained itself. . . . It is in posts that our infantry is best employed. . . . Few generals could hope to sustain themselves with fifteen or twenty battalions in the middle of an army, as the English did, without their ranks being shaken, or their fire slackened, by the charges of cavalry. These things we have all seen, but our pride makes us avoid discussing them because we know that we cannot imitate them.'

Although Marshal Saxe for some time held the chief command in the French army, he had not sufficient power to carry out many of the reforms which he advocated: fortunately, however, his ideas have been preserved in a work which, with a little that is merely speculative, contains much that may be profitably studied even in the present day.

Although he knows it is at the risk of being considered of limited capacity,* he confines himself chiefly to details. He does not pretend to teach the art of manœuvring armies into victory; but on the contrary thus rebukes those who do. 'They

* Jomini, from the cloudy height of his theories, looks down upon 'le bon Maréchal de Saxe' in pity and astonishment, that he should have wasted time on such topics as the soldiers' dress, armament, and individual efficiency. Absorbed in the elaborate manœuvres of masses, he forgets that even masses are made up of units, and that, if these perish, the first will scarcely succeed, even with the aid of his own royal road to victory.

forget,' he says, 'that nothing is more variable than the temper of troops,* and that actual warfare is swayed by an infinity of circumstances which human sagacity cannot foresee: for my part, I do not propose to lay down rules.'

Having asserted that military success depends in a great degree upon details, he thus proceeds. Our dress is costly and inconvenient: the love of appearance† prevails over a regard for the soldiers' health. On taking the field with their present dress and equipment, the weakest sink, and go into hospital: their duty falls on the more robust, who in their turn succumb to the same causes aggravated by overwork: at the end of a campaign we see battalions mustering only a hundred men, and thus do the smallest things influence the greatest.

Drill, he asserts, is necessary to soldiers; but it should by no means engross all their attention; it is in their legs that lies the secret of manœuvres and battles. He insists on a regularly cadenced step and serried ranks. He strongly condemns the indiscriminate and objectless firing of the French infantry.‡

* In this, as in most of his observations, he is fully borne out by Napoleon. The reason is simple; they are based on experience of human nature, and human nature in all ages is the same.

† What is, after all, this so-called 'love of appearance'? What foreigner who, amongst ourselves, does not admire one of our well-appointed huntsmen or grooms—and what is it that is admired? Is it not the very absence of that tawdry frippery which in a soldier's dress is sometimes dignified by the name of ornament?

‡ National character is slow to change. 'Our infantry,' writes General Foy, in the succeeding century, 'is justly accused of a useless expenditure of ammunition.'

Powder, he says, is not so terrible as it is believed to be: I have seen whole salvoes fired without killing four men: a single shot in presence of an enemy is sufficient to set off a battalion, a brigade, a whole column.

In order to check this vice, he proposes that in advancing against an enemy, the musket should be carried over the shoulder until reaching close quarters. But while he deprecates the useless expenditure of ammunition, he also wishes to improve the shooting of the individual soldier. He recommends the formation of special corps of marksmen, who, armed with a light piece, of great precision and range, should be constantly practised in firing, and in action employed as skirmishers on the front and flanks of the troops of the line.

He agrees with Montecuculli in esteeming the lance as the queen of steel weapons, and suggests that the front ranks of regular cavalry should be armed with it; but what he most forcibly insists on is the absolute necessity of light cavalry—light not merely in name, but in men, horses, and equipment.* He had the satisfaction of seeing two regiments raised upon his system in the Polish army. They highly distinguished themselves on every occasion, and in outpost duties, advanced, and rear guards, established a decided superiority over the cavalry of the line. They are even said to have terminated one campaign

* Notwithstanding the united testimony of Napoleon, Saxe, and Frederic, as to the value of such a force, it is remarkable that, if we except the Cossacks, Europe can scarcely produce a single regiment of really light cavalry.

by their own unaided efforts, pursuing and cutting up the retreating enemy, during two days, to so fearful an extent, as prevented their again appearing in the field.

He wishes generally to form cavalry in small squadrons of three ranks, to simplify and lighten the horse equipments, to retain the carbine, but to abolish pistols, to adopt a long, straight three-cornered sword, so as to do away with the cutting and slashing by which men expose themselves while they inflict little injury on the enemy. He insists on great rapidity in cavalry movements, and requires that a squadron should be able to advance for a mile at full gallop without breaking its ranks. He altogether disapproves of what he calls interlarding horse with foot, while he shows how they may afford each other much mutual support, and he declares that all cavalry which, instead of charging home, pauses to fire, is lost.

Having discussed the two principal arms in all their detail, he rises to higher considerations: he observes —It is not large armies that gain victories, but good ones. In a highly efficient force, every individual soldier must have a moral guarantee of rising by his actions and services; then you may restrain by the most severe, but never degrading, discipline, for hope makes men endure and undertake anything. State economy should never be carried to the verge of meanness: officers ought to be enabled to maintain a position proportioned to the rank they bear; and veterans are decidedly entitled to a higher rate of pay than recruits.* These latter may, with safety, form

* Napoleon says, 'The soldier should be encouraged by all

two-thirds of an infantry battalion on active service, but in the cavalry they are altogether useless. As to the manœuvres of an army, they should be few and simple, so that on the day of action the general's hands may be free. His orders should be distinguished by an equal simplicity: he should merely say 'such a corps will advance—such another will support,' and leave the due execution of these orders to the respective chiefs. Those commanders who, instead of watching the enemy and anticipating their movements, pretend to direct the minute evolutions of a whole army, in the end become paralyzed and effect nothing.

Such is the spirit of remarks founded on personal experience, which, although called forth by a state of things long gone by, have since been approved by the highest authorities and must always possess an intrinsic value. But it is in treating of fortification, a science to which he was never specially devoted, that Saxe displays the greatest boldness, originality, and depth of thought.

On this subject, his opinions are so absolutely opposed to those which prevailed in his time, and which even now are by many deemed unassailable, that they might be cited simply as a proof of his speculative tendencies, if later experience, supported by the combined testimony of great soldiers and philosophers,

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means to remain under his colours. This will be accomplished by showing a marked esteem for veteran troops. . . . . It is most unjust not to give higher pay to a veteran than to a recruit.' On this, as on every vital point, these two great men, separated almost by the interval of a century, are perfectly agreed; and, when such men agree, who shall gainsay them?

had not invested them with an importance which I think has never yet been fully recognised.

While Cormontaigne was engaged in studiously elaborating the existing systems, Saxe, denouncing them all as too complicated and expensive, loudly raised his voice against what he designated as the error of fortifying towns. Simple words; but, striking, as they do, at a custom which has prevailed from the remotest times, well worthy of study and careful meditation. Let them be examined and criticised in a spirit large as the principle they embody. Let us not warp their meaning in order to apply them rigidly to arsenals, dockyards or capitals,* the vital centres of national force; and then let us hear what their author has to urge in their support.

'The plan,' he says, 'of fortifying numerous large and populous towns, besides being extremely costly, and absorbing a vast quantity of men, is altogether ineffectual. No government can afford to store up provisions sufficient to supply not only the garrison, but the inhabitants, during a protracted siege. The consequence is, that these places, so formidable in

* Although the principles laid down by Saxe could never justify the exposure of capitals or already existing arsenals and naval dockyards; yet they would conduce to the defences of the first being erected at a distance from their centres of population; and to the situations selected for the two latter being removed from large commercial towns. Who can trace the recent growth of fortresses without observing that, in the best and greatest this spirit is fully carried out? The defences of Paris can never expose its population to the protracted horrors of a regular siege; and, in Alessandria, Cherbourg, and Sebastopol, the local inhabitants bear but a small proportion to the number of government functionaries and land or marine forces.

appearance, rarely hold out for any time; and the garrisons, with famine staring them in the face, are often as rejoiced as the besiegers when a practicable breach admits of their making an honorable capitulation. Perhaps I shall be told that the governors of such fortresses may exercise their discretion in either driving out the defenceless inhabitants or allowing them to starve.* But if such be the treatment of friends and protectors, what worse could be expected from the most barbarous enemy?

It is here that Saxe is so eloquently supported by Arnold, who brings to bear on military subjects all the powers of his great and philosophic mind. He condemns the custom and denies the supposed right of sacking a town taken by assault, or of blockading one defended not by the inhabitants, but by a garrison wholly independent of their control. His humanity suggests many means of mitigating these horrors; but he probably was not aware of the simple solution contained in the words—abandon the error of fortifying towns.

In addition to these forcible reasons, Saxe affirms that in fortifications nature is stronger than art; that large towns rarely owe their growth to any capabilities for defence, while in every country there are many unoccupied positions which might at a slight expense and with small garrisons, be made valuable as pivots, depots, and rallying points for the national forces. These points he proposes to fortify according to a simple and expeditious plan. He abolishes masonry,

* During the lengthened investment and blockade of Genoa by the allies in 1799 and 1800, no less than 20,000 helpless and innocent people died of starvation.

except in his advanced towers, and relies on earthworks, strengthened by beams of wood, and surrounded by wet ditches; he advocates casemates lined with timber, and a system of gun-rafts, which has, at least, the merit of being original and suggestive. He also urges that the central fort should be completely secured from distant fire; and that the interior slopes of all advanced works should be constructed so as to favor their recapture by the garrison after they may have fallen into the possession of the enemy.

Such is a rough outline of Saxe's views on an important and a much vexed and a yet undecided question. Without pausing to enter too minutely into details, we cannot fail to remark that in boldly assailing the plan of fortifying large and populous towns, he is supported to a certain extent by Vauban, who wished greatly to reduce the number of such fortresses and to supply their place by intrenched camps and inundations, and who, in spite of the triple array of fortified frontier towns, considered that Paris, the capital of France, was no longer safe. Still more forcibly is he borne out by Paixhans, who, in loudly proclaiming the weakness of our defensive fortifications, reproduces, while he strengthens, many of Saxe's arguments: and lastly by Napoleon, who, speaking from bitter experience, denounces the existing system as problematical if not ineffectual. With such authorities, joined to recent experience and the ever-increasing influence of destructive agents in war,* is it rashness to foretell that at no very distant day

* Should any of the ancient fortified cities, such as abound in Flanders and on the French frontiers, be now attacked by an adequate force, the terrible power and destructiveness of a fire converging from an immense circumference on one devoted spot would at least anticipate the slower operations of famine.

expedience and humanity will alike demand that the fate of cities be decided far away from their crowded thoroughfares, and by less revolting means than the misery and sufferings of their unoffending inhabitants? When such a wholesome revolution shall have come to pass, let some little of its merit be ascribed to Saxe, who more than a century ago had the courage first to raise his voice against 'the error of fortifying towns.'

It is not a little remarkable, considering the low ebb to which the French army had fallen, that it should at one time have possessed so profound an observer as Saxe, and so practical a reformer as Gribeauval, who, devoting himself to the simplification and improvement of field artillery, raised that branch of the French armament to so high a state of excellence as made it a model for all the other states of Europe.

The system submitted by Gribeauval to his government in the year 1754, and finally adopted eleven years later, may be taken as the base upon which field artillery is at present organized. Many changes, it is true, have since been effected; but all conceived in the same spirit which dictated his reforms; all aimed at simplifying the action and increasing the mobility of an arm which, having long been treated as an accessory, now claims to rank as an essential.

In the reformed system of Gribeauval all the pieces were shortened and lightened; the various calibres of field-guns were reduced to four;* while a single description of howitzer was made to suffice for all field purposes.

* The calibres were of 12, 8, 4, and 1; the howitzer was of six inches.

These pieces, mounted on light but strong carriages, were enabled to follow with ease all the movements of an army; the old pair of shafts* and single file of horses were superseded by the pole and double file; by which means power was economised and the length of columns diminished.

To Gribeauval we are also indebted for the general adoption of the prolonge,† a strong rope used to connect the trail and limber of a gun, and thus to facilitate firing and slow manœuvring in the vicinity of an enemy — the introduction of traversing platforms, the substitution of iron balls for lead, in canister, and the employment of the modern tangent scale, which contributes much to the rapid precision of fire. He established, as the unit of field-artillery force, a battery of eight pieces, worked by a company of gunners, and provided with a due supply of ammunition, forge, store, and other wagons, so as to render it in a great measure independent of extraneous aid.

Such are the chief features of the reforms planned and carried out by Gribeauval—reforms so large and salutary as to have earned for him the title of the creator of modern field-artillery. In theoretical science he was, however, far outstripped by an English civilian, Benjamin Robins, who, about the year 1740, successfully solved the most complicated questions of gunnery, and first drew attention to the ad-

* In the English artillery, shafts are still retained; and where powerful horses can be obtained, this plan has great advantages in manœuvring.

† The prolonge—the advantages of which diminish as the range of artillery increases—has of late years lost favour both on the Continent and in our own service.

vantage of firing elongated projectiles from rifled bores,* a system which, having been allowed to lie dormant for upwards of a century, seems destined in our day to reach its highest perfection.

Whilst Saxe and Gribeauval were struggling, often in vain, to force improvement upon the unwilling chiefs of the French armies, Frederic of Prussia, a soldier by choice and ambition, was gradually raising the military institutions of his country to a degree of excellence such as modern Europe had never yet beheld.

Like Alexander and Hannibal, he was indebted for the foundation of his army to the foresight of a father. Certainly, Frederic William cannot pretend to rank with either Philip or Hamilcar; he was perhaps altogether devoid of genius for war, but by dint of patience and application he contrived to solve a difficult problem—how in the government of a poor and narrow territory to combine due economy with the maintenance of a large and highly disciplined military force. He left to his successor, in addition to increased revenues and resources, an army of 70,000 men, famed throughout Europe for their steadiness and fine appearance.

Doubtless to this fine appearance and outward show much had been sacrificed. The Prussian soldier was generally valued like dry goods, according to weight or bulk; his time was chiefly absorbed in rubbing, brushing, and polishing himself and his accoutrements

* Robins prophesied that the general adoption of the rifle principle would produce effects little less wonderful than those caused by the first introduction of firearms. Is not this prophecy about to be realized?

into an almost painful state of smartness; even the horses' hoofs were waxed and the manes platted and decked with ribands. Such a state of things, as Frederic remarked, must have ended in rouge and patches. Yet the Prussian infantry was then esteemed the best in Europe. It had first adopted iron ramrods, and excelled all other troops in the rapidity of its fire.

Such materials in the hands of a practical soldier were soon worked into a highly efficient force. The race of giants was allowed to die out, the wax, the ribands, and the high polish were all laid aside, and the regiments, less imposing on parade, were taught to manœuvre in the field with a rapidity and precision which had hitherto been deemed unattainable.

In his first battle, that of Mollwitz, Frederic discovered that his ponderous cavalry, carefully exercised to fire in line, was no match for the more active Austrians, who in their Turkish wars had learnt the advantage of rapid evolutions. He accordingly determined to reorganize the whole of this branch of his army, and eventually, with the aid of such men as Seidlitz and Ziethen, he produced a force of which the equal has never, even to this day, been seen in Europe.*

Abolishing all line firing and formal complicated manœuvres, he insisted that every mounted soldier should be a bold horseman and expert in the use of his weapons, which he was taught to wield while galloping across country at full speed.

The squadrons, about 140 strong, were ranged at

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* Napoleon speaks of 'the intrepid Seidlitz and his matchless cavalry.'

first in three, but subsequently in two ranks; in advancing against the enemy, the first line was full and unbroken, while the squadrons of the second were usually separated by intervals equal to their fronts. Formed in this manner, large bodies of cavalry manœuvred at a gallop without falling into disorder, and such was the impetuosity of their charge, that of themselves they retrieved the most critical battles, and swept whole adverse armies from the field. In the management of his cavalry, Frederic was guided by the same principles as Cromwell and Timour. He sacrificed weight to speed, and relied upon rapid and successive charges supported by strong reserves. Such a system has in all ages proved its superiority over that of heavy cumbrous squadrons manœuvring at a slow pace, and trusting either to the effects of their fire or to the mere weight of men* and horses: yet how seldom do we see it adopted and fully carried out.

The Prussian infantry regiment under Frederic consisted of two battalions, each containing six companies of about 120 men; but as it was usual to form the grenadier companies into select corps for separate service, a battalion in the field was reduced to five companies, which, for purposes of manœuvring, were re-distributed into eight divisions. This arrangement, creating a distinction between the tactical and

* Of all errors none is more fatal than that of imagining that, by raising the weight on a horse's back, you increase his momentum in a charge. Any weight beyond that of a light man and light equipments fatigues and finally overpowers the horse; while in a charge it is rendered worse than nugatory by his diminished speed.

administrative system of the battalion, was extremely faulty, and can scarcely be excused by Frederic's desire to introduce his own plan of manœuvres without disturbing the old-established ranks and distinctions, which accorded to the position of captain a degree of consideration and emolument not enjoyed by it in other continental armies.

The shallow formation in three ranks, and the deployed order, were preferred as affording the greatest amount of fire, a consideration to which all others were made to yield; but at close quarters the soldier was taught to rely on his bayonet, and to the terrible effects of that arm the Prussian infantry was more than once indebted for success: in his infantry, as in his cavalry movements, simplicity was the chief aim of Frederic. It was during the interval of peace which preceded the glorious Seven Years' War, that he first introduced the system of rapid deployments from close column into line, from which he derived so much advantage, and which has completely changed the spirit of modern infantry evolutions.

Frederic greatly increased the proportion of guns, and more especially of howitzers employed in the field; and, as in the armies of Napoleon, this increase was constantly progressive;* it is to him that we owe the origin of horse artillery batteries,

* This progressive increase may in both cases be traced to common sources. The desire to make guns supply the place of those veteran bands which were swept in successive campaigns, and a perception of the great results, combined with economy of men, which may be derived in battle from well-handled masses of artillery.

in which the gunners, being mounted, are enabled to keep pace with the most rapid manœuvres of cavalry; and he was the first among modern generals* to appreciate the advantage of a regularly-organized staff. This body, at first composed of only twelve officers, was formed under the immediate supervision of the king. They were taught to reconnoitre and survey ground, to mark out encampments, to fortify villages, to raise intrenchments and stockades, to guide the columns of march, and especially to sound the depth of streams and marshes, so as to avoid giving to an army as a support a fordable river, or a marsh, which infantry could cross without wetting their feet.

Such are the chief improvements effected by Frederic, and although they have sufficed to change in a great degree the character of modern warfare, yet, of themselves, they afford but an imperfect measure of his genius. In order to appreciate this, we must follow him into the field; we must see him at the head of his advanced guard, scanning the enemy's strength, and artfully luring them into a false position; then when the decisive moment arrives, deploying his columns, unmasking his batteries, and gaining a victory almost without striking a blow.

At the approach of winter, in the year 1757, Frederic found himself reduced to the most deplorable condition. He, whose subjects did not number six millions, was engaged in war with the combined great powers of

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* It will be remembered that Alexander had formed a distinct body of engineers and draughtsmen, charged with the principal duties which now devolve upon the staff.

continental Europe. The armies of Austria, France, Russia, Saxony, and Sweden, threatened to sweep across his scattered territories, which, fortified by no natural boundaries, were on all sides open to attack. Formidable as this vast coalition appeared, it was rendered still more so by the fact that during the summer he had been unable to make head against one of its members alone. He had been driven out of Bohemia by the unaided Austrians, and these were now supported in the east by the Russians, already victors at Jægersdorf, and in the west by the French, who were advancing in great force from the Rhine.

In these seemingly desperate circumstances Frederic's heart did not fail him. The French and Imperialists had united at Erfurt and were carrying all before them, when, suddenly breaking up his camp near Leipzig, he advanced to check their progress. He led his little army across the Saale in three columns, and on the 4th of November, having reconnoitred the enemy, who were very strongly posted, he took up a position with his right resting on the village of Bedra and his left on Rosbach; his forces, which only amounted to 22,000 men were ranged in three lines, the two first composed of infantry and the third of horse.

The Allies, 60,000 strong, under Soubise and Hilburghausen, resolved to establish themselves on the left and rear of the Prussians, and accordingly, under cover of a brisk cannonade, they quitted their camp on the morning of the 5th, and took ground in three columns towards their right front. Frederic allowed this movement quietly to proceed until the allied columns began to pass beyond his left flank, which they did at a considerable distance from it, when he suddenly ordered

Seidlitz to retreat with the whole of the cavalry in a direction perpendicular to his original front, whilst he himself prepared to follow with the infantry. Seidlitz moved to the rear, left in front, at a rapid trot, his columns being masked by some intervening hills, on one of which Frederic planted a battery of eighteen heavy pieces. Passing behind this battery, Seidlitz wheeled round to his right, and forming on two lines he rapidly charged the heads and flanks of the French columns, which were innocently pursuing their way, under the flattering impression of having out-manœuvred their opponents. Taken completely unawares by this vigorous attack, and ploughed up by the fire from the hill battery, the allied cavalry were soon routed and driven from the field, while a few Prussian battalions had little difficulty in turning so signal an advantage into a complete victory. In this battle, which was named after the village of Rosbach, Frederic lost 500 men; while the Allies, who fled in great disorder beyond the mountains of Thuringia, left 8,000 killed, wounded, and prisoners, and sixty-seven pieces of artillery on the field.

Re-assured by this great victory as to the fate of Saxony, Frederic turned his eyes towards Silesia, where his troops under Bevern were sorely pressed by the Imperialists. On the 12th of November he marched from Leipzig towards the east, but before reaching the Oder he received intelligence of Bevern's total defeat at the battle of Breslau. Without pausing in his course, he reached Parchwitz on the 28th, where he was shortly afterwards joined by Ziethen, and the combined force, which, owing to numerous desertions, numbered only 30,000 men, advanced by

Newmark, against the Imperialists, who, 80,000 strong, under Prince Charles of Lorraine and Marshal Daun, were in position at Leuthen.

Frederic having, under cover of a dense fog, surprised and driven in the advanced guard of the Imperialists, seemed about to bear down with all forces on their right, when suddenly changing the direction of his columns, and fearlessly abandoning for another his former line of operations, he marched obliquely against their left, where the nature of the ground, with which he had become familiar by manœuvring over it in time of peace, was most favourable to an attack. The advance of the Prussian infantry was supported by a concentrated artillery fire and frequent charges of cavalry. The Austrian left, taken at disadvantage, and exposed to these combined and unexpected assaults, was quickly pierced; and the assailants wheeling round, and attacking the line in reverse, rendered the position no longer tenable. It was in vain that Daun strove with great resolution, by pivoting on the village of Leuthen, to take up a fresh position perpendicular to his original front. His ranks were swept by an enfilading fire of heavy artillery, and charged by the assailing squadrons before their formation was complete. His cavalry was utterly destroyed, and his whole army driven from the field in the greatest confusion.

This disastrous battle cost the Imperialists 30,000 men, and upwards of a hundred guns. Frederic had to deplore the loss of some of his best soldiers, but the sacrifice had not been made in vain. In the space of one month, he had shattered two vast armies

which, from the opposite extremities of his kingdom, had threatened to crush him beneath their accumulating weight; he had retrieved and avenged the many disasters sustained by his generals; and with a force never exceeding 30,000 men, he had baffled the concerted plans of experienced leaders at the head of sixfold numbers: yet this is the man who we are gravely told, 'advanced but very slightly the military art,' and, moreover, 'was entirely ignorant of strategy!'*—Happy ignorance.

Not such the estimate formed of Frederic by a great rival, who applied to warfare other tests than those of scales and diagrams. 'It was not the Prussian army,' says Napoleon, 'which defeated Europe in arms, but Frederic. . . . The battle of Leuthen would alone suffice to immortalize him, and rank him among the greatest generals. . . . He committed errors; but these errors were eclipsed by the great actions, the fine manœuvres and the daring resolutions by which he was enabled to terminate so disproportionate a contest triumphantly. He was eminently great at the most critical moments; which is the noblest eulogium that can be bestowed upon him.'

* Rocquancourt's extracts from Jomini.

# CHAPTER VI.

The American War of Independence—Washington—His Successes—Their Influence on the French Revolutionary Armies—Increased proportion of Skirmishers—Great Administrative Talent of Carnot—Mediocrity of the first Revolutionary Generals—Good Principles laid down by the Committee of Public Safety—Military Reforms under the Republic—Napoleon appointed to command in Italy—He turns the Maritime Alps—Passes the Po at Piacenza—Successively occupies the Line of the Adige and of the Tagliamento—Crosses the Julian Alps, and carries the War into Germany—He does not materially alter the existing system of Tactics—Egyptian Campaign—The French repulsed from St. Jean d'Acre—Italian Campaign of 1800—The Army of Reserve—Napoleon throws himself on the Austrian Communications—Battle of Marengo—Military Organization of Napoleon—Foy's Estimate of his qualities as a General—Wellington—His Indian Experience—His System influenced by the Composition of his Forces—Marmont outmanœuvres himself at Salamanca—Brilliant Victory of the English—Passage of the Douro—Torres Vedras—The March on Vittoria—Wellington's Sieges—They have lowered his reputation on the Continent—His high rank as a Commander.

BEFORE entering on the period of those vast combinations, those battles of giants to which the French Revolution gave rise, it may be well to glance at the American war of independence, the military not less than the political results of which exercised so powerful an influence on the current of opinions and events.

In that contest, so little creditable to the British arms, the hastily equipped peasant and artisan were pitted against the trained veterans of Europe; experienced generals were opposed by leaders but recently called from the ordinary occupations of civil life. Not only was the fate of a flourishing community at stake, but this great problem was to be solved, Can the spontaneous levies of a brave people hope to prevail over the regularly organized and disciplined troops of a standing army?

The earlier events of the war seemed to favour the views entertained by the great bulk of military men —jealousy and disunion among their chiefs paralysed the first efforts of the Americans, until in Washington, all agreed to recognise the ascendancy of a superior mind. It was then that a unity of design began to mark their military conceptions. A check, or even a defeat became no longer synonymous with a disgraceful rout; the war was as much as possible confined to affairs of posts, in which the unerring aim of the American marksmen, firing from behind hastily constructed earthworks, told with deadly effect upon the British ranks. Leaving as little as possible to chance, Washington threw himself upon his opponents' communications, harassed their march, and cut off their supplies. At length the balance, after being for some time fairly poised, inclined decidedly in favor of this intrepid chief. One after another, the armies opposed to him either capitulated or were destroyed; and the English Government was glad to obtain peace by renouncing all the pretensions which had once been so arrogantly insisted upon.

It is not because the campaigns of Washington,

who claims our tribute under the double title of soldier and patriot, are deficient either in interest or instruction, that they are here passed over in order to consider the character of the troops which he commanded. His conduct under the gravest difficulties is deserving of special study. Few have been more happy in discriminating between the prudence imposed on a leader of raw levies, and that passive inglorious attitude often assumed by men of such calibre as Marsin and Mack. Few have drawn more advantage from rapidly constructed field-works, supporting without circumscribing the movements of an army, or have reduced their whole system of warfare into more complete harmony with the nature of troops and resources at their command. Yet it was not so much his individual genius as the necessities of his countrymen which stamped with such novel and peculiar features the struggle from which they finally emerged in triumph.

Throughout the whole duration of the war, the American army was essentially an army of skirmishers. Few of their troops could manœuvre steadily in the open field; perhaps still fewer could venture to cross bayonets in line with the British infantry. They accepted the simple alternative—they eschewed all elaborate movements, and refrained as much as possible from engaging at the point of the bayonet. The time and energy which are often expended on a sterile course of drills and evolutions, they devoted to perfecting themselves in the use of firearms. Whether armed with rifle,* musket, or fowling-piece, each

* Although the terrible efficiency of the rifle was now first

patriot soldier was a skilled marksmen. Avoiding all solid formations, they flung themselves in loose bands behind breastworks and natural obstacles, or on the skirts of woods and thickets. Rarely throwing away a shot, each man selected for himself his special mark; their enemy's officers were picked off with fatal precision, while the carefully drilled soldiers, accustomed to line and platoon firing by word of command,* were disconcerted by this independent mode of warfare, in which they were struck down at a distance by an almost impalpable foe.

This change, almost amounting to a revolution in the art of war, did not escape the keen observation of Lafayette and the other distinguished soldiers by whom France was represented. Returning to Europe, they brought with them not only a taste for republican institutions, but a due appreciation of that elastic force which, independent of disciplined battalions, ever resides amongst a brave and patriotic people.

Marked indeed was the influence of these sentiments on the destinies of France. In that terrible crisis of anarchy, when his country, standing alone,

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generally recognised, that arm had been for a long time previously in use. Rifles appear to have been constructed about a hundred and fifty years before the first patent relating to them was taken out in England in 1635. The Letters patent obtained by one Arnold Rotsipen for 14 years, 'if he live soe long,' specify a plan 'to rifle, cut out, or screwe barrells as wyde, or as close, or as deepe, or as shallowe, as shal be required, and with great ease.'

* This system had been denounced as ineffectual by Marshal Saxe, who, it will be remembered, strongly urged the expediency of forming bodies of practised sharpshooters. Frederic eventually had recourse to the plan of independent firing.

and destitute of regular soldiers, was threatened by the combined hosts of Europe, Lafayette stood high in military command; to him and to the force of his opinion it was due that the conscripts, instead of hopelessly affecting the bearing and tactics of seasoned troops, inclined to the loose formation and independent action of the American patriots—to use their own words, they threw themselves on the foe 'en enfants perdus.' Enthusiasm supplied the place of discipline. Europe beheld re-enacted scenes already familiar to another hemisphere. The line and column yielded before the ceaseless surge of skirmishers and sharpshooters, supported by a powerful artillery. An army of veterans recoiled before the army of a day. Well might Paixhans exclaim, 'the strength of a nation is no longer in its barracks.'

Yet it would be to argue from false assumptions if, guided by these successes of raw levies, we were to undervalue the influence of discipline and instruction. In point of fact, each army had cultivated one branch of the soldier's education to the neglect of another. The Americans and French conscripts were excellent skirmishers; the English and Germans who opposed them were admirable in column and line—a good soldier is equally at home in all situations. But it was necessity and not choice which set limits to the instruction of the hastily collected levies, and they exercised a sound judgment in preferring to be good skirmishers rather than indifferent troops of the line.

The astonishing success of the early French revolutionary troops, composed as they were of a motley assemblage of old skeleton regiments, national guards,

gendarmes, and 'levées en masse,' must be attributed to other causes besides their own ardour and impetuosity. At the Committee of Public Safety sat Carnot, less celebrated as an engineer than as one of the ablest administrators that ever accumulated the resources, and directed the great operations of war. When denounced, and almost condemned in 1795, it was in his defence that Bourdon de l'Oise gave utterance to the celebrated words, 'What! will you accuse the man who has organized victory?' and assuredly if any one could merit the eulogium that man was Carnot.

In the first revolutionary armies, the inexperience of the troops was not corrected by any shining talents in the generals. The enthusiasm which animated the masses failed to kindle the genius of their chiefs. Dumouriez, Custine, Houchard, Dampierre, Pichegru, afforded a dreary succession of mediocrities, and perhaps justified the constant interference of the so-called representatives of the people.*

Acting under such leaders, whatever success was achieved by the French troops seems due rather to their own impulse than to any superior forethought or large design. In his spirited sketch of a battle

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* Some idea of the summary style of these representatives may be formed from the conduct of Saint Just, who, at a council of war, when the generals had pronounced against offensive measures, exclaimed, 'To-morrow the republic will require a victory; choose between a siege and a battle.' A disastrous attempt to force a passage over the Sambre was the result. Denounced by these harpies, the generals, whether defeated or simply not victorious, were without pity consigned to the dungeon or the scaffold.

during this period, General Foy scarcely alludes to the directing power of a responsible chief. According to him, the action was opened by clouds of skirmishers, horse and foot, launched forth according to some general idea rather than guided in the detail of their movements; they harassed the enemy, escaped from his masses by their velocity, and from the effect of his artillery by their dispersion. They were relieved in order that the fire should not languish; they were reinforced in order to increase their strength.

The flanks of an army are rarely unattackable; every position has its weak points. On these the skirmishers threw themselves by inspiration. The joint in the armour once discovered, every one lent his aid. The flying artillery (so called from its mounted gunners) came up at a gallop, and poured in case-shot at point blank. The whole army moved towards the spot by a common impulse, the infantry in column, for its fire was not needed; the cavalry by regiments or squadrons ready to strike on every side. When the enemy's fire thickened, an officer, a soldier, sometimes a representative of the people, chanted forth the hymn of victory. The general waved on high his tricoloured plumes as a rallying sign to the brave. The soldiers dashed rapidly forward; the foremost ranks crossed bayonets; the drums beat the charge; the air resounded with the echoing cry, 'En avant! . . . . . en avant! . . . . . Vive la République! . . . . .'

So far, then, as enthusiasm and intelligence throughout the lower ranks could supply the place of science in those above, the deficiency was made good. But something more was necessary in order to withstand the ever

increasing forces which threatened completely to envelope the Republic. It was not by a train of vague eccentric movements, displaying the extremes alternately of rashness and hesitation, that the supremacy or even the safety of the French armies could be secured.

Happily for the fate of the Republic, an equal if not greater dearth of genius prevailed among their enemies. The mantle of Frederic had not fallen upon a successor. No Marlborough now led British troops to certain victory; and Mack, the idol of the Austrian, the champion of the theoretical school; Mack, whom Napoleon pronounced utterly incapable of command, was engaged in the minute elaboration of plans, destined never to be either understood or carried out.

From this dull level of mediocrity it resulted that, while the memory of the Seven Years' War was still fresh in men's minds, operations were witnessed at which Marsin or Tallard might have blushed. Thin cordons of troops were stretched along a whole frontier; weak detachments were isolated with no apparent object but that of isolation; precaution was heaped upon precaution, while the fact was ignored—that to defend every part of a position is not to defend the whole. In offensive enterprises, divisions under chiefs of ill-defined responsibility were pushed along diverging roads, according to no general plan. Posts and patrols were infinitely multiplied. The most ambitious project was limited to an attack in front on numerous and ill-selected points of the enemy's line. An advantage on the right was neutralized by a repulse in the centre. The reserves,

never at hand to render a blow decisive, came up in time to supply, by fresh victims, the place of the wantonly slain. Along a zone of fifty leagues the rival forces contended with equal blindness and fury. The slaughter was immense: the result was positively null.

To stay such fruitless butchery Carnot appeared. He came to crown republican efforts with success, and to prove how often the true science of war is also the science of humanity.

It was in written instructions to the generals on the frontier, that the vigorous conceptions of Carnot first saw light. Thus, the unfortunate Houchard is urged to relieve Dunkirk, then besieged by the English. 'Not because the point is important in a purely military sense, but because the honor of the nation is there. . . . . Concentrate immense forces in Flanders, and let the enemy be driven out.'

But perhaps the true spirit of enlightened warfare was never reflected by happier words than those addressed to the same general by Barrière, who was, doubtless, inspired by his colleague Carnot:—'Instead of accumulating troops in large masses on particular points, you have divided them into separate detachments, and the generals entrusted with their command have usually had to combat superior forces. The Committee of Public Safety, fully aware of the danger, had sent the most positive instructions to fight in large masses; you have disregarded their orders, and in consequence reverses have followed.'

Here, then, we find distinctly foreshadowed a revival of those great principles which had been suffered to fall into oblivion: principles clearly and unequivo-

cally announced by the Committee of Public Safety; but which it was reserved for Napoleon fully to illustrate and carry out.

It is not, however, by words and exhortations alone that Carnot must be judged. During a most perilous crisis, he was the mainstay, the guiding genius of the French nation. For him no duty was too arduous, no responsibility too grave. He seemed invested with a power of doing more and being more than other men. He devoted sixteen hours a day to the duties of his office. He organized fourteen armies, supplied them with arms, ammunition, and equipment, selected their generals, furnished these with instructions which he himself frequently saw carried into execution. In directing operations he suffered by his want of the experience and habit of war; but his sudden appearance at head-quarters was generally the signal for striking a decisive blow. In adversity he displayed unshaken fortitude. As a military administrator, he stands almost without a rival. Napoleon appreciated his great qualities, and admired his noble disinterested character. 'Carnot,' he said, 'was the most honest man who figured in the Revolution.'

Several useful creations and reforms, at this period, tended to increase the efficiency of the French army. The superior commands were more clearly defined, and the various grades made to harmonize with the nature and extent of the functions performed. The three distinct staffs which had existed and clashed together before the Revolution, were amalgamated. A Commissaire Ordonnateur presided over the administrative department. The infantry was moulded into demi-brigades of three battalions, numbering each 700

men. The proportion of light troops was increased. The cavalry regiments were divided into four squadrons of about 160 strong. Horse artillery was organized on the Prussian model. Numerous bodies of veteran and coast artillery were formed. Companies of workmen* were created, regularly divided into first class, second class, and apprentices; and these, together with the pontoon trains, were subjected to the control of the artillery.† The material of the artillery remained unchanged as it had been established by Gribeauval. The engineers were strengthened by the formation of companies of sappers and miners. A body of topographers kept the authorities supplied with maps and elaborate descriptions of the theatres of war; and lastly, balloons, which we have seen again employed during the past campaign, were used as means of reconnaissance; two companies of aeronauts being regularly enrolled, which, notwithstanding their good services at the battle of Fleurus, where they are said to have terrified the Austrians, were eventually suppressed.

Thus, by an admirable organization, were to a certain extent corrected the inexperience of the troops, and even the want of talent in their commanders. It may be remarked that in those reforms the means of

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* The Sardinian battery of workmen presents a model of perfect organization. Under its sheds, erected in a central position, everything can be repaired, from a transport wagon to a cartridge-box.

† It appears reasonable, as the artillery are entrusted with by far the most valuable part of the material of an army, that the pontoon trains, more especially required for the passage of that material over rivers, should also be under their charge.

subsistence, the forming of magazines, and the issuing of supplies were strangely neglected. Here let poverty be pleaded in excuse. 'My troops must live,' said Turenne; and to that necessity all things have at times been made to yield.* The State was strained to the utmost in order to supply men, weapons, and ammunition. For the rest, an army, the type of organized enthusiasm, was supported by a system of organized plunder.

By dint of changes, of restless supervision and undoubted cruelty, generals were at length found worthy of leading the republican armies. It was a barbarous but efficacious mode of improving the stamp of commanders to execute the most incapable. When one chief was degraded, cast into prison, and perhaps beheaded, a thousand men, full of the enthusiasm and self-confidence of youth, rushed forward to fill his place. Even to aspire to a command was in itself a proof of intrepidity; and it was from the ranks of these aspirants that emerged the master spirits of their age.

Napoleon Bonaparte was not unknown to the army of Italy when the Directory, with rare sagacity, preferred him to older and more experienced men as the successor of Scherer, with whom, in spite of the victory at Loano, they were dissatisfied. He entered Nice to assume the chief command during the last days of March, 1796. He was in his 27th year, but already he was a man of mark. The trenches of

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* 'War must nourish war,' is neither a new principle, nor one which is likely ever to be completely abandoned.

Toulon and the streets of Paris had witnessed his calmness, his courage, and his unfailing resources. As chief of the artillery during the Italian campaign of 1794, he had divined the cause of reverses which it was then beyond his power to arrest; and now confident and self-reliant, he announced to his famished and demoralized troops that the period of their hardships was at an end, and that, for the future, plenty, riches, and glorious conquests awaited them.

The army which he addressed in such hopeful terms numbered about 40,000 men, badly clothed and worse fed. It was distributed into four divisions, exclusive of a reserve of 4,000 horse. Laharpe, Augereau, Massena, and Serrurier commanded these divisions, which, like those of the other revolutionary armies, were composed of certain mixed proportions of infantry, cavalry, and artillery. Berthier, that master of organization and detail, was chief of the staff.

The encampments of the Republican army, in the beginning of April, stretched from Voltri, on the right, along the coast by Savona and Loano, where, bending inland, they terminated towards Ormea and the Col di Tenda, on the extreme left. The coast road from Nice to Genoa was the chief line of communication; while the Austro-Sardinian divisions, numbering in all nearly 80,000 men, being scattered along the rugged northern slopes of the mountains, were to a great extent isolated.

Such relative positions were eminently favourable to daring enterprise on the part of the French; and, accordingly, Napoleon lost no time in assuming the offensive. By means of demonstrations, he induced

Beaulieu, the allied general, to divide his army into three distinct forces, directed respectively on Voltri, Savona, and Cena. By this imprudence he appeared to court defeat. Napoleon, neglecting for a time the flanks of the enemy's line, concentrated all his efforts against their central columns, marching on Savona. The road through the mountains to that town crosses the break where the Alps terminate and the Apennines begin. It was by this road that the Austrians must advance; it was by this road that Napoleon had resolved to penetrate into the rich valleys of Sardinia.

A redoubt in the mountain pass was occupied by Brigadier Rampon, who, with his followers, had sworn to die rather than surrender. Their heroism was put to the proof. Some outer intrenchments were carried by the Austrians at the point of the bayonet, but against the mainwork they threw themselves in vain. Meanwhile, from both extremities of the French line, column after column was dispatched towards this petty post, the pivot at once of the day and of the campaign.

Slowly but surely the tide of battle turned against the Allies, who, completely isolated, looked in vain for reinforcements, while every moment added to the numbers and confidence of the French. On the 11th Argenteau was hurled back from the blood-stained redoubt of Monte Legino; on the 12th he was completely routed at Montenotte, while a third victory on the following day at Millesimo severed the Sardinian from the Austrian forces, and threw open the roads to Turin and Milan.

Of the remainder of this brilliant campaign, let us take a brief summary from the lips of the great hero

himself:—'Having separated the Austrian army from that of Sardinia, Napoleon took possession of Cherasco,* a fortress at the confluence of the Tanaro and Stura, twenty leagues from Savona, and there established his magazines. He compelled the King of Sardinia to surrender to him the fortress of Tortona, situated twenty leagues east of Cherasco, in the direction of Milan, established himself, then passed the Po at Piacenza,† seized on Pizzighettone, a fortress on the Adda, twenty-five leagues from Tortona, advanced on the Mincio, took possession of Peschiera, thirty leagues from Pizzighettone, occupied the wall and forts of Verona, on the left bank of the Adige, which secured him the three stone bridges of that city, and Porto Legnano, which gave him another bridge over that river. He remained in this

* It was from Cherasco that Napoleon, on the 26th of April, issued his celebrated proclamation to the army, beginning thus: 'Soldiers! In fifteen days you have achieved six victories, taken twenty-one colours, fifty-five pieces of cannon, several fortresses, and conquered the richest portion of Piedmont. You have taken 15,000 prisoners, and killed or wounded more than 10,000 men. . . . You have gained battles without cannon, passed rivers without bridges, made forced marches without shoes, bivouacked without brandy, and often without bread.' Great words; but yet only soberly and adequately describing still greater achievements.

† This passage of the Po drew down the censure of Jomini, who denounced it as contrary to rule! Napoleon's reply will be found in the introduction. But perhaps his severest rebuke to that class of critics who sit in summary judgment on the campaigns of great men, occurs when he justifies his conduct at Arcola, again assailed by the same authority. 'But,' he concludes, 'such a delicate train of reasoning depends upon a calculation of hours, and cannot be comprehended without a perfect knowledge of the localities.'

position until the taking of Mantua, which he caused to be invested and besieged. Between his camp under Verona and Chambery, his first depôt on the frontier of France, he had four fortified places in échelon, which inclosed his hospitals and magazines, and only required garrisons amounting to 4000 men; convalescents and conscripts were sufficient for this purpose; thus he had, on this line of a hundred leagues, a place of depôt at every four marches. After the capture of Mantua, when he proceeded into the States of the Church, Ferrara was his place of depôt on the Po, and Ancona, seven or eight marches further on, his second place, at the foot of the Apennines.

'In the campaign of 1797, he passed the Piave and the Tagliamento, fortifying Palma-nuova and Osopo, situated eight marches from Mantua, passed the Julian Alps, repaired the old fortifications at Clagenfurth, five marches from Osopo, and took up a position on the Simmering. He was then eighty leagues from Mantua; but he had on his line of operations three places in échelon and a point of support at every five or six marches.'

Such is a hasty sketch of two campaigns which recall the glorious names of Mondovi and Lodi, of Lonato and Castiglione, of Arcola and the Tagliamento—campaigns which carried the French arms in triumph into the heart of Germany, where their progress was only stayed by the Treaty of Leoben, signed exactly one year from the time when Napoleon, then little known and esteemed in Europe, had first pierced through the mountain barriers of Italy.

Throughout these campaigns, which in order to be

appreciated must be studied in all their minute detail, Napoleon constantly supplied by rapidity of movement the place of numbers. To him seemed accorded the precious gift of thinking and combining more quickly than other men. Equally active and indefatigable in body and mind, he ever appeared at the moment when least expected, and disconcerted by his sudden inspirations the long meditated projects of the Austrian commanders. It would be vain, however, to seek in these improvisations new formations, orders, or manœuvres. 'During a quarter of a century of battles,' says General Foy, 'tactics have not been advanced beyond the combinations which the Great Frederic had imagined.'* It was not till the French infantry was exposed in Egypt to the furious charges of the Mamelukes that whole divisions, thrown into immense hollow squares, with guns and cavalry at the angles, thus met by a novel and exceptional formation an equally exceptional nature of warfare. Napoleon has been accused of an undue and fixed preference for deep columns of attack. But let us remember that in Italy this order was recommended, firstly, by the scene of war, which varied alternately from rugged mountain passes to swamps often traversed by a single causeway; secondly, by his want of cavalry capable of meeting and warding off the charges of the Austrian squadrons; thirdly, by the necessity of restricting as much as

* Should not this afford a wholesome lesson to those who pass their time in devising *new* evolutions and manœuvres? To such one is inclined to extend the pity always accorded in romance to the supposed discoverers of the philosopher's stone.

possible the front of battle, and thus to a certain extent neutralizing the numerical superiority of the enemy; and, lastly, by the greater facility afforded of striking rapid and unexpected blows. Yet that Napoleon laid down on this subject any fixed and immutable rule is disproved by his own words: 'There are times when the whole line of infantry must become one continuous line of skirmishers.'

During the Eastern campaigns of 1798-99, Napoleon boasts that with an army of 25,000 men, he occupied Egypt, Palestine, and Galilee—a space of nearly 30,000 square leagues; and yet that, as in Italy, he never had a convoy or a courier intercepted. His career of victory was for the first time checked by Sir Sidney Smith and the brave Turkish garrison of St. Jean d'Acre, who fully established the value of half-disciplined troops in the defence of places. During this siege, the defenders resorted to the then novel expedient of advancing against the besiegers by counter-approaches pushed beyond the original works, a system which has lately been so brilliantly illustrated by the Russian engineers at Sebastopol, and which promises for the future to subject the defence of fortresses less to methodical rule than to the ingenuity and resources of their commanders.

It was in Egypt that the French cavalry, in measuring swords with the Mamelukes, acquired much of that impetuosity and dash which distinguished them in subsequent campaigns. Napoleon thus compares the capabilities of the rival forces—'Two Mamelukes were able to make head against three Frenchmen, because they were better armed, mounted, and instructed;

100 cuirassiers, however, were not afraid of 190 Mamelukes; 300 could beat an equal number; and 1000 would easily put to the rout 1500—so great is the influence of order, tactics, and evolutions. Murat, Leclerc, and Lasalle presented their squadrons to the Mamelukes in several lines; when the Arabs were on the point of overwhelming the first, the second came to its assistance on the right and left; the Mamelukes then halted, and wheeled in order to turn the wings of the new line; this moment was always seized to charge home, and they were uniformly broken.' Who can fail to trace a striking resemblance between these tactics and those so skilfully pursued by Cromwell at Naseby, and by Timour in the fourteenth century?

Of all Napoleon's successful campaigns, the most critical was undoubtedly that of Marengo. Playing for a great stake, he was forced to make proportionate risks. He had returned from Egypt to find the provinces which he had so gloriously conquered reft from the Republic, and again fallen under the dominion of Austria. It is a peculiarity of Northern Italy that, lying as it does between two rival powers, neither of them can occupy it in a military sense without exposing their flanks and communications to the attacks of the other. An Austrian army at Turin, or a French one on the Tagliamento, must ever look with anxious misgiving towards the passes of Switzerland or the Tyrol.* General Melas was now at

* In great European conflagrations the neutrality of Switzerland must ever be precarious. Political reasons sufficiently account for the sudden pause of the Emperor Louis Napoleon on the line of the Mincio; but were others required, I should seek

the head of a considerable force in Piedmont. Napoleon marked well the insecurity of his position, and determined, by one vigorous blow, to strike at the very heart of Austrian power in Italy.

The means adopted by Napoleon to lull suspicion while he was silently accumulating his resources, are typical of that profound dissimulation and craft which also formed so large an ingredient in the characters of Hannibal and Marlborough. At a time when there was scarcely a disposable man in France, he pompously announced the existence of a grand army of reserve. An army of reserve! Here was a windfall for the spies and political agents, who from every side flocked to Dijon, the head quarters of this formidable array, where, finding only some skeleton battalions and half-clothed recruits, they wrote to their employers, not on any account to be diverted by the imaginary movements of a non-existing force.*

Meanwhile two million rations of biscuit were collected, nominally to provision the fleet, in reality to sustain the army in its march over desolate mountains. Sledges and hollowed trunks of trees were

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them rather in the peril of an advance, which would leave the Tyrol, now pierced by excellent roads, on an exposed flank, than in the anticipated resistance of fortresses, which can be masked by a smaller force than is required to garrison them. The vaunted stronghold of Mantua is so situated that, while it is difficult for an attacking force to get in, it is quite impossible for the defending force to get out.

* Some writers have given credit to Napoleon for concealing the *assembly* of this force. But in fact, the army of reserve, pouring into Italy by five different roads in detachments drawn from a vast circumference, was assembled for the first time in the plains beyond the Alps.

prepared for the guns; mules were provided for the transport of ammunition and material; and already the central columns were climbing the Great St. Bernard before the best-informed persons even in France suspected where the blow was to fall.

By Exilles on the extreme right, by the Little and Great St. Bernard, by the Simplon and Mount St. Gothard, 60,000 men, triumphing over almost insurmountable difficulties, penetrated, during the month of May, into Upper Italy, and massed themselves round Ivrea in the centre, while powerful columns on either flank divided the efforts of the enemy between the defence of Turin and Milan. It was on the latter town that Napoleon first directed the bulk of his forces. There would always remain time to give battle to Melas, but it was of the utmost importance at once to seize upon his chief line of communication.

Accordingly, breaking up from Ivrea, Napoleon marched by Santhia, Vercelli, and Novara on the Ticino, which, after a slight resistance, he passed at Turbigo and Buffalora, and, on the 2nd of June, established himself once more, almost without striking a blow, in the capital of Lombardy, while Lannes, by a rapid march down the left bank of the Po, seized upon Pavia and a considerable siege-train which had been there abandoned by the Austrians.

When at length Melas perceived, not that the storm was gathering, but that it had already burst upon his most vulnerable point, he determined to concentrate his scattered forces in the neighbourhood of Alessandria, there to await the turn of events, the drift and importance of which he was far from fully

comprehending. He was not, however, long kept in suspense. Immediately after the capture of Pavia, Lannes crossed the Po, and established himself at Stradella; while Murat, sweeping down on Piacenza, made himself master of that cardinal point, and thus a second Austrian line of communication, by the right bank of the Po, was effectually cut off.

Napoleon, informed by an intercepted despatch that Massena had accepted terms, and evacuated Genoa, determined to march directly on Alessandria. Accordingly, leaving a force under Moncey to maintain the line of the Ticino, and having secured a third passage across the Po at Cremona, he transported the bulk of his troops to the right bank of that river,* and Lannes, with an advanced guard, was pushed forward from Stradella towards Voghera. About midway between these two places, he fell in with 14,000 Austrians, under General Ott, by whom he was at first sorely pressed; but, reinforced by Victor towards the close of the day, their united forces achieved the victory of Montebello, the Austrians being driven back with great loss on Alessandria.

On the 13th of June, Napoleon crossed the Scrivia, and pushed on Victor towards Marengo, with orders to secure the bridges across the Bormida. Desaix was detached to the left, with the double object of

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* Jomini censures these dispositions, but charitably urges the tumult of marches as an excuse for the greatest general of modern times! Doubtless there were safer and more prudent courses open to Napoleon than that which he pursued. But if safety and prudence had been alone consulted, should we ever have heard the names of Alexander and Hannibal, of Frederic or of Clive?

feeling for Suchet, who was coming up from the maritime Alps, and of observing any flank movement which Melas might attempt to make on Genoa. In the village of Marengo, Victor found a rear-guard of 5000 Austrians, which he had little difficulty in driving across the river—a triumph, the ease of which was nearly fatal to the French, for it induced Victor to relax his vigilance, while it confirmed Napoleon in the impression that Melas had quitted the neighbourhood of Alessandria, and moved either on the Ticino or on Genoa.

At dawn, on the 14th, these illusions were abruptly dispelled. The Austrian army passed the Bormida in several columns, and, protected by the fire of 100 guns, inundated the cultivated plains of Marengo, over which the French divisions were scattered in fancied security and with little art.

Like many of the most celebrated and decisive battles, Marengo was neither marked by skilful combination nor scientific manœuvre. Napoleon, for the first time in his career, was fairly taken at disadvantage; it has even been said that he was surprised.* Little, however, as he may have anticipated the blow, he promptly adopted the best measures to meet it. He advanced several columns in échelon to the support of Victor; he assigned to Murat's cavalry a commanding position in front of the village of St. Giuliano; and ordered Desaix at once to retrace his steps, and hasten towards the field of battle.

* Many scenes of this great conflict are obscured by doubts, and have furnished a fruitful source of dispute and recrimination to the generals who themselves sustained the principal parts.

But long before all these dispositions could be carried out, the situation of the French army had become extremely critical. General Ott, at the head of 8000 Austrians, had extended towards the left, advanced with great intrepidity through the village of Castel-Ceriolo, and thus established himself on the right flank and rear of the columns, which under Lannes, were moving up in support. All the foremost French lines were compromised by this movement, and being pressed in front by superior forces, they fell back in great haste and confusion. It was in vain that Napoleon threw forward fresh divisions. The unwonted impulse of victory animated the Austrian troops, who, gaining ground along their whole front, and overlapping the retreating masses on both flanks, drove them, at the bayonet's point, for several miles along the Tortona road towards St. Giuliano.

The time had now arrived for the Austrian cavalry to charge home, and complete the work so auspiciously commenced by their infantry and artillery; but Melas, on a report that Suchet was in force near Acqui, had detached his best squadrons on the bootless errand of observing that general, and now bitterly felt their loss. Still the victory, if not decisive, appeared at least to be secure. Every moment increased the disorder in the French ranks. Napoleon meditated an oblique retreat, by Salé, on the Po. Melas stood on the verge of fame. He was slightly wounded. He turned away, and rode back to Alessandria, in order to announce his triumph.

Before St. Giuliano, the Austrian columns, dreaming of pursuit and not of battle, met with a sudden

check. It was here that Napoleon had determined to make a last stand. This village commanded all his lines of retreat, and through it, the reinforcements of Desaix must debouch into the plain. That general, outstripping his largest division, had arrived on the field with a small force, at the moment that Melas was complacently leaving it. Napoleon asked him what he thought of the battle. 'It is entirely lost,' was the heroic reply, 'but it is only two o'clock, there is time to gain another.'

The final rallying in front of St. Giuliano acquired both solidity of form and buoyancy of spirit by the arrival of Desaix's long-expected columns which, depressed neither by the weariness of their march nor by the sombre aspect of the field, bore themselves at once to the front of battle. Supported by twelve pieces of artillery, Desaix led on his soldiers to the attack. On his right, Lannes' infantry was deployed in line; while in reserve were the shattered battalions of Victor and the squadrons of Kellermann and Champeaux.

The Austrian infantry, preceded by guns and flanked by cavalry, came on apace, to redeem the ground already lost by their light troops. The masses closed upon an equal field, and in their first shock, Desaix met a glorious death. His fall was soon to be avenged. For a moment his followers paused; but it was only again to surge forward in the full tide of victory. From the second line Kellermann had scanned the struggle in his front. He marked the moment of irresolution; he beheld the fate of battle suspended, and boldly threw his

squadrons into the balance.* Advancing rapidly on the right of the French infantry, he detached a portion of his force to keep in check the Austrian cavalry, and prolonging his movement, which was partly concealed by vineyards, until he was fully established on the left flank of the Austrian columns, he suddenly wheeled his squadrons into line and led them to the attack.

The French are not a nation of horsemen; General Foy has even said that their restless disposition† prevents their becoming skilful riders; but since the days when the 'furia Francese' first became renowned, they have often thrown into their cavalry charges a vehement impetuosity, an unconquerable determination to strike home, which has made them prevail over steadier and more imposing troops. So it was on this occasion. Bursting upon the Austrian masses, as some pent-up torrent gathers increasing force from the very obstacles which oppose it, so these glorious squadrons clove their way through successive columns, which dense, unwieldy, and unguided, choked the road to Alessandria.

That happy charge had decided the issue of the day. On every side the Austrians fell back in disorder, molested only by the French cavalry, for their infantry was too exhausted to follow up the success.

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* It is even now a matter of doubt whether Kellermann's charge was the result of his own inspiration or of Napoleon's formal command. In either case, the brilliant manner in which it was executed must secure for Kellermann a high rank among cavalry leaders.

† Vivacité inquiete.

During the night, the whole of the vanquished army repassed the Bormida, and left Napoleon in undisturbed possession of the field.

In this protracted battle the numbers engaged on both sides were nearly equal, the Austrians having rather more and the French rather less than 30,000 men under arms. The Austrians, however, had the advantage of assailing dispersed divisions with their united force; and they were also superior in artillery, of which Napoleon had brought but little across the Alps. The loss of the victors was estimated at a fifth, and that of the vanquished at a third of their whole force: a far higher proportion than we have witnessed in recent contests between the same powers, and tending to shake the opinion almost unanimously expressed that, owing to the increased precision of fire-arms, battles would be rendered more bloody and decisive; an opinion which was certainly at variance with the teaching of history.*

From the height of presumptuous confidence to the lowest depths of despondency appeared with Melas to be an easy descent. On the morning after the battle, he obtained permission to retire with his army behind the Mincio, on condition of delivering up all the fortresses possessed by Austria, to the west of that

* It may on the contrary be assumed that the losses sustained by troops in action are in the inverse ratio to the progress of military science. On the day after the battle of Crecy 30,000 French troops are said to have been actually slaughtered by 2600 English. Could this have happened had the use of fire-arms been general? No amount of range, precision, and destructiveness in weapons can ever reproduce on future fields the wholesale carnage of Cannæ and Zama.

river. Thus in a few days and almost at a single blow, Napoleon, with an army the very existence of which was deemed apocryphal, had for a second time conquered the fairest portion of Northern Italy. He re-entered Paris on the 2nd of July, having been altogether absent from that capital less than two months.

The campaign of Marengo is the last in which Napoleon may be traced, plunging fearlessly into the midst of superior enemies, and wresting victory from them almost by his own individual exertions. Henceforth the theatre of war becomes enlarged; political relations are more complicated; the whole manhood of a nation is armed and directed on one point; while success often depends on the sagacity of a lieutenant who commands a larger force than that which conquered at Marengo or Castiglione. Here, to analyse is to be laborious and minute, while to compress is infallibly to become obscure; we must then, in future, rest satisfied with touching lightly some of the most salient points of the military system under the Empire.

Napoleon did not seriously disturb those elements of modern tactics which had been settled by the Great Frederic, and which remain almost unchanged in the present day. He raised the number of battalions in a regiment from three to five, of which one served as a depôt to the remaining four. Thus the proportion of active forces to those in reserve was increased. The recruits were less instructed, but they were more quickly utilized—a prime object in armies where the consumption of men was so prodigiously rapid.

The battalion was divided into six companies, each

140 strong: those on the flanks, of grenadiers and voltigeurs, were frequently detached to form separate brigades of chosen troops. The battalion was habitually formed on three ranks, and manœuvred by divisions of two companies; the favorite order of advance being in double column of companies from the centre, which, from the facility it affords for rapid deployment or formation into square, is best adapted for the general purposes of war: but at times dense columns* of numerous deployed battalions were launched with terrible effect on the decisive point.

Under the Republic mixed divisions of horse, foot, and artillery had, like the ancient legions, rendered their commanders in a high degree independent of external aid. But, for the colossal designs of Napoleon, a larger organization and large units of force were required. Thus divisions, preserving their due proportion of guns, were formed exclusively of infantry or cavalry, while the place of the old divisions was supplied by large *corps d'armée* of thirty or forty thousand men, commanded by Marshals of the Empire. In the later wars, these immense masses were sometimes formed exclusively of cavalry; and the same motive of separate concentration might be traced in those grand reserves of artillery, which, deployed into line at a critical moment, opened fire simultaneously from a hundred guns, and seemed absolutely to batter in breach the enemy's array.

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* These gigantic columns, which so often turned the fortune of the day against German and Russian troops, were never able to deploy under the steadfast bearing and shattering volleys of the English line—a disability which is not likely to be removed by the substitution of the rifle for the musket.

Napoleon established the proportion of cavalry in his armies at a fourth of the infantry. Under the Republic, part of the heavy cavalry had resumed the casque and cuirass, which had been abandoned during the reign of Louis XIV. Napoleon did not abolish this defensive armour, of which, however, he entertained no high opinion, for, as he remarked, it was insufficient to ward off the enemy's bullets, while it tended seriously to aggravate the wounds received. On the model of the Polish light cavalry, he formed several regiments of lancers, which, by their brilliant services, raised the fallen reputation of an arm described by Montecuculli as the queen of steel weapons.

In the artillery, Napoleon retained the 12-pounder of Gribeauval, but substituted a 6-pounder for his pieces of four and eight. This he tells us was only a first step in the path of simplification. But more noticeable than his reforms in this arm, is its prodigious growth during his campaigns both in numbers and importance. Each *corps d'armée* had its separate park and reserve of guns. At Austerlitz, Jena, and Friedland, the artillery, acting in masses, produced the most decisive results; but on the memorable day of Wagram, it suddenly rose from a secondary to a principal arm of battle. When fortune seemed about to forsake the French, and a vast gap in their array weakened and even compromised their position, eighty pieces of the guard, launched forward in close column of batteries, deployed into line, and by their terrible fire decided the fate of a battle in which the French infantry and cavalry had been on all sides repulsed.

Napoleon entered Russia with 1372 guns; and at the Borodino, which was chiefly an artillery battle, upwards of 1200 pieces, being in the proportion of five to the thousand men, caused on both sides the most frightful havoc; while at Leipzig, the same proportion of guns to men being preserved, upwards of 2000 pieces of artillery took part in that gigantic struggle for empire.* It was doubtless the remembrance of these great events that caused Napoleon to remark, 'artillery, in the present day, decides the fate of nations, and he who can bring a mass of this arm to act rapidly on a particular point, unknown to the enemy, is sure of success.' An axiom which has been recently illustrated by his nephew on the field of Solferino.†

Napoleon was the first to give a thoroughly military organization to those subsidiary departments on which the most brilliant success of an army so often depends. Battalions of military train and equipages, companies of bakers, of hospital attendants, of skilled

* At Leipzig the French artillery is said to have discharged 230,000 rounds, being at the rate of 320 per gun, and exactly twenty times as many as it fired at Malplaquet, the bloodiest battle fought during the reign of Louis XIV. Yet Napoleon wrote, after his fall, 'If, on the evening of Leipzig, I had possessed 30,000 rounds of gun ammunition, I should have been to-day master of the world!'

† I have been told that when the Emperor Louis Napoleon, whose military talents were then unknown, directed manœuvres at the camps of instruction, some of his generals, formed in the desultory school of Algeria, looked sceptically at his favourite concentration of artillery, which they believed impracticable in actual warfare, but of which they have recently witnessed the signal success.

workmen, facilitated the operations of subsistence and transport, which were still further lightened by the abolition of tents. He did not, however, as has since been done in France, devolve all administrative control on a single department; perhaps he feared by such a step to trench on the power of his lieutenants, which he desired should be proportioned to the heavy responsibility that rested on them.

Accustomed to see and judge for himself, and demanding from his generals the greatest personal vigilance and exertion, Napoleon was no favorer of office men. Under him, in order to rise to high command, it was necessary to learn how to lead soldiers by living among them. He required frequent and minute reports of the number, position and state of the troops. To furnish these was a laborious duty, but, in the eyes of Napoleon, it was the duty of a respectable clerk, and those who performed it pursued a career which rarely led to advancement. Some officers, specially appointed, were employed in sketching at the outposts and among the skirmishers; but the generals never delegated to a subordinate either the choice of positions or the distribution of their troops: often strangers to the learning of schools, they conducted in person the duties of command, of administration, and of the staff.

To this centralized authority in the hands of his lieutenants, Napoleon was often indebted for their prompt and exact compliance with his commands. When there is no one with whom to consult, to remonstrate, and to divide responsibility, obedience becomes the sole resource. Thus Napoleon could confidently write in a moment of impatience:—'Ask me

for anything but time;' or, to Macdonald, when ordering him to cross in the depth of winter the glaciers and snowdrifts of the Splugen:—'Wherever two men can walk abreast, there an army can pass;' or, again, to Junot in Portugal:—'Let there be no delay on account of magazines or provisions; an army of 20,000 men can subsist everywhere.' He was accustomed accurately to guage the energy and capabilities of his generals, and in his measure he was rarely deceived.

Of all the estimates formed of Napoleon's military character, the most impartial appears to me that which I now compress from the eloquent pages of General Foy:—'With his passions and in spite of his errors, Napoleon, taken for all and all, is the greatest warrior of modern times. He bore into the field a stoical courage, a tenacity profoundly calculated, a mind fruitful in sudden inspirations, which disconcerted by unhoped-for resources the plans of his enemies. Let it never be said that he was a successful soldier, because he was a powerful monarch. Of all his campaigns the most memorable are—that of the Adige, when, a general of yesterday, he commanded a small force, ill-fed, ill-paid, and ill-equipped; and that of 1814, when reduced to a handful of exhausted soldiers, he fought as one against ten. Other generals have equalled him in the art of occupying a position with troops. Some have given battle as well. Many might be named who received it better. He surpassed them all in the manner of directing an offensive campaign.'

Napoleon, the creature of genius and inspiration, founded no school of war; he was ably seconded by

subordinates, but none of them approached his level. It has been said that his disciples were separated from him as the elements of a science are separated from its philosophy. Doubtless, among them were many whose noble qualities, whose intrepidity and never-failing resources, command our admiration. But of all those who figured with Napoleon on that vast theatre of war which he had created, there is but one, and that one was of his enemies, for whom can be safely claimed a large space in history.

Like so many of our ablest soldiers, the Duke of Wellington gained his first experience in Indian warfare.* His victory of Assaye, standing in point of time between Plassey and Meanee, will also stand with them in the record of great achievements; but it is as the conqueror of Napoleon and his Marshals that he chiefly claims our attention—an attention, the more amply rewarded, since it reveals a method of making war essentially and distinctively his own.

The Peninsular campaigns have been fortunate in their historians. Foy and Napier, the most eloquent military writers of France and England, never fall below the level of those great events which they so vividly describe. Yet in consulting their pages, in weighing the purport and results of regular operations, two circumstances should be ever present to our mind —the heroic, the often suppressed yet ever revived

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* If India is rivalled by Algeria as a rough test for the private soldier and the subaltern, there are many features, such as its lengthened lines of operation, its mighty rivers and mountain chains, the wealth and power of its chiefs, which render it far superior as a school for generals.

resistance of the Spanish people;* and the advantage enjoyed by the English, the inestimable advantage, as it has been called by Napoleon, of commanding the seas. When we behold our army on the Upper Ebro manœuvring fearlessly in the presence of superior forces, let us consider how multiplied were the resources of a general, who, relying on a moveable base of English ships, could retreat at pleasure to the north, the south, or the west; and in dwelling on the glories of Talavera, Salamanca, and Vittoria, let us never forget that they had been preceded by the triumphs of Gerona, of Saragossa, and Baylen.

It is perhaps owing to the fact that the armies of Wellington were generally cast in one mould, that a certain degree of sameness may be traced through many of his battles and campaigns. The proportion of his cavalry was never great; that of his artillery was always ridiculously small.† He was thus forced chiefly to rely on his infantry, and conse-

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* One French army laid down its arms, the other hastily retreated on the Ebro, while King Joseph abandoned his capital before the spontaneous rising of the Spanish people. We are distinctly told that the Spanish regular troops, often suspected of attachment to the established government, played only a subordinate part in this national outburst.

† At Vimeira we had 1 gun to 889 men; at Talavera, 1 gun to 600 men; at Albuera, 1 gun to 789 men; at Salamanca, 1 gun to 833 men: at Vittoria, 1 gun to 889 men: at Toulouse, 1 gun to 812 men; at Waterloo, the proportion rose to 1 gun for every 408 men; yet we could only oppose 156 British guns against 246 French; and to this disparity in an arm so well adapted to such a field, must be attributed the enormous losses sustained by our victorious army. Well might the Duke write, in 1813, 'Our equipment in ordnance is infinitely lower than that of any army now acting in Europe.'

quently to assume a defensive attitude in chosen positions; for Napoleon, who has told us that infantry is the arm of battles, has also warned us against exposing it to the rude trial of an advance in the open plain against superior combinations of cavalry and artillery. But while, at the commencement of an action, Wellington usually stood on the defence, that defence never degenerated into passive resistance. He opposed the calm endurance and lasting qualities of his troops to the fiery impetuosity of the French. At times he allowed the enemy's columns to advance within a few paces of his line before he gave the signal, at which it threw in a shattering volley and charged home with the bayonet. But he was not always so patient, and those who, like Marmont at Salamanca, presumed on his seeming inertness in order to manœuvre loosely, had instant cause to repent their rashness.

On this occasion, after several days spent in mutual observation, Marmont, by means of those complicated evolutions so dear to second-rate generals, contrived to separate his left wing from the remainder of his army. Wellington, who had been carelessly watching manœuvres which he did not profess to understand, instantly noted the false move intended to threaten his own right flank. A moment sufficed to make his dispositions. Before the first of the enemy's columns had deployed, he poured his troops down from the heights into the fatal gap, completely severed the French left from their centre, and had virtually gained a decisive victory almost without striking a blow.

Yet, often as similar circumstances forced upon

Wellington similar modes of action, he could, when the occasion required, boldly assume the initiative, and rival Napoleon himself in the scientific daring of his combinations.

There is something grand and heroic in his attitude when, in 1809, with the broad Douro and Soult's veteran army in his front, he, having collected three crazy barges, calmly commenced the passage of the river, and landed on the hostile bank his first detachment of twenty-five men. But was this prudent? has been asked by critics. No; it was only splendid and successful. Had Wellington been always prudent, would he have been selected to cope with that hero who said in his pride, 'I consider myself the most adventurous general that the world has ever beheld?'

As a masterpiece of defensive art, let us note the choice of, and fortifying by chains of detached works, the position of Torres Vedras, which Napier has termed the depository of Peninsular independence, and the advantages of which Paixhans has thus tersely described: 'Behold the English intrenched and covering Lisbon; their front invulnerable, their flanks well supported; behind them their fleet loaded with provisions, before them a desert; it was a defensive army in abundance, threatened by a famished assailant.' Or if, after contemplating this calm security and repose, we seek more heart-stirring scenes, let us follow the rapid sweep of Wellington when, in 1813, bidding a last adieu to Portugal, he forced the Esla, the Tormes, and the Douro, defended by French armies, turned the iron line of the Ebro by manœuvring round its sources among the mountains, descending from which, like one of its own impetuous torrents, he

overthrew the legions of Joseph at Vittoria, and swept them before him as shattered wrecks through the passes of the Pyrenees.*

Wellington's sieges are the dark spots on his otherwise bright career. To us they recall no pleasing memories; by our foes they are recorded as a lasting reproach. 'If,' says General Foy, no friendly critic, 'the British Parliament had possessed on military subjects one tithe of the knowledge brought to bear on legislation and finance, an account would have been demanded of the English blood which ignorance caused to flow in torrents at the sieges of Badajoz and Burgos.' Let not this blame, or as much of it as is deserved, be distributed between the generals and their engineers. Little addicted to the pursuit of science, Wellington never fairly valued its possession by others. Where there is no power, there can attach no responsibility. Our engineers in the Peninsula may sometimes have been wanting in experience; but did they urge those disastrous assaults on Burgos before its fire had been subdued or the trenches and galleries of attack developed? Did they advise the siege of St. Sebastian, a fortress easily masked, because, like Mantua, it is as powerful for defence as it is impotent for attack, and when the siege had been resolved upon, were their counsels followed or

* In order to effect this flank march on the sources of the Ebro, it was necessary for Wellington to change his base of operations. Accordingly, that of Portugal was abandoned, and another created by the British fleet on the coasts of Biscay; a service rendered to the army by the navy which can never be over-estimated, and to which some analogy may be found in the more recent transfer of the allied base in the Crimea from the coast north of Sebastopol to the harbours of Balaclava and Kamiesch.

systematically neglected?* No, on them the reproach does not rest. Doubtless the Peninsular sieges owe some part of their mournful celebrity to our want of adequate means and material; but when it is attempted to fix distinct responsibility, let those who have attempted the work of science, while repudiating her agency,† alone be answerable for their failures.

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* Sir William Napier, in his eloquent narrative of this siege, while he completely exonerates the engineers, and describes our artillery fire as unexampled for its rapidity and accuracy, devolves the larger share of blame on Graham. Yet he states that during the progress of the siege, 'Wellington's orders continued to pass through the hands of the Second Engineer.'

† It is curious that while we have always shown a strange and fatal hankering for sieges, we have shown an equally fixed determination to repress and keep down our scientific services. 'Anything but an artilleryman, except an engineer,' seems our motto in selecting commanders. Foreigners, noting the constant failure of our siege operations, but not observing that they are rarely controlled by scientific officers, have naturally formed no high opinion of our artillery and engineers. Yet in the Peninsula, the first, though coldly encouraged, most brilliantly performed their duties; and at the conclusion of peace, such was our admitted excellence in this arm, that it was held up for a model to the rest of Europe. Baron Dupin, in his official report to the French Government, does not conceal his preference for our artillery over that of his own country; and he particularly notices 'our guns clearing, like cavalry, deep ravines, which it would have taken the French artillery much time and labour to surmount.' Not to go back beyond Sebastopol, on the 17th October, 1854, we had 73 guns mounted, and the trenches and magazines had been solidly and scientifically constructed by our engineers; while the French had only mounted 53 guns, which were quickly silenced, owing to the explosion of their magazines and destruction of their works. Thus was rendered abortive what might have proved a successful attack. The superiority of our artillery fire was remarked by the Russians. Such facts require no comment.

These sieges, which we are apt to overlook, in order to dwell on his more glorious exploits, have tended to lower the reputation of Wellington on the Continent. There are some who would even attribute his successes wholly to the admirable quality of his troops; but such must be deficient either in candour or discernment. A prolific school of writers, which altogether ignores the existence of Marlborough, whose name was once a sound of terror throughout their land, may also refuse tribute to the genius of Wellington; but impartial posterity, while perhaps denying him the very highest excellence, will assign to the unconquered hero his hardly-earned place among the greatest of modern commanders.

# CHAPTER VII.

Military progress must no longer be sought in marches and manœuvres—Napoleon's want of taste for Mechanical Science—He considered the existing systems of Fortification as ineffectual—His project of Fortifying Paris—He advocated the further simplification of Artillery—He deemed a large force of Artillery indispensable to modern armies—Paixhans' system of horizontal Shell-firing—His opinions on National force—He condemns the multiplicity of regular Fortresses, and recommends a few fortified positions—Steam as an agent of inundation—The combustion of Gunpowder is often too rapid—Existing ignorance as to the properties of Gunpowder—The Emperor Louis Napoleon as a Military reformer—His simplified and rifled Artillery—His iron-cased batteries—English rifled cannon—Peculiarities of rifle projectiles—The war rocket—Its uncertainty—The rifled musket—Its progress towards perfection—Its effects in warfare—The breech-loading needle-gun of the Prussians—The Enfield and Whitworth rifles—Decisive results obtained in war from elongated projectiles—Instances in the Campaigns of Holstein, the Crimea, India, and Italy—Improved fire-arms increase the power of the people and of national resistance—Progress of Fortification—Doubts which surround this subject—The old polygon Fortresses are out of date—Provisional Earthworks have increased, while masonry has diminished in value—Advantage derived by temporary works from their elasticity—What is meant by the resisting power of a Fortress?—The futility of scattered land defence—Fortification must conform to the altered spirit of warfare—The bases of national security will remain unchanged.

SINCE the great Continental campaigns which terminated with the fall of Napoleon, military science has not remained stationary. Its progress

is ever onwards; but henceforth that progress, no longer traced in marches, manœuvres, and orders of battle, must be sought amongst improved details, and in the application of new, or hitherto neglected mechanical agencies.

'War,' says Sir William Napier, 'tries the strength of the military framework; it is in peace that the framework itself must be formed.' And never was a period of comparative peace, such as Europe has for nearly half a century enjoyed, more prolific of ingenious and original conceptions, whether for destruction or defence.

To enumerate, much less to analyse all these various conceptions, would be a task of no ordinary labour and difficulty. I shall rest satisfied with touching lightly upon those plans which have already stood the rude test of experience, or which derive a special value from the sources whence they emanate.

The saying already quoted, together with his want of taste for mechanical science, may account for Napoleon's neglect of improvements in either armament or material; but he was not insensible to the influence of impending changes, and left behind him valuable suggestions, many of which have been already carried out, and all of which are entitled to attentive study.

Our present system of fortification, he says, is problematical, if not ineffectual. The plan of the frontier defence of Flanders was, in a great measure, the conception of Vauban; but he was obliged to adopt places already in existence. He constructed other fortresses to cover the sluices, to regulate the inundations, and to form means of communication. But he never pretended that these fortifications alone

could form a barrier. Such as they were, however, they protected France during the disasters of Louis XIV., and again in the first revolutionary campaigns.* Yet such protection is at best precarious. The Romans, at Thrasymene and Cannæ, lost their armies beyond hope of rallying, although those battles were fought in the midst of fortified places. Had Hannibal suffered the same fate, it would have been attributed to his distance from his depôts and fortresses; but when defeated at Zama, at the very gates of Carthage, his whole army perished. After Marengo, Melas lost his army, yet there was no want of strong places. Alessandria, Tortona, Genoa, Turin, Fenestrella, and Coni were around him in all directions. Mack's army on the Iller, and the old army of Frederic after Jena, were obliged to lay down their arms, though in the midst of their own country, fortresses, and armies of reserve.

The principles of fortifying a country require to be perfected; this part of the art of war is susceptible of great advance. It is better to centralize, unite, and draw together our forces, guns, and engines of war, than to disperse them. A great capital represents the *élite* of a nation. It is the centre of opinion and the grand depository of everything. What an inconsistency to leave a point so important without immediate

* It is well known that Marlborough was burning to march directly on Paris, and was only restrained by the excessive caution and timidity of the Dutch; while it has always been accepted as a proof of incapacity in the allied commanders of 1793, that they wasted on paltry fortresses time and efforts which might have carried them triumphantly into the heart of France. In 1814, and again in 1815, of what avail were all these boasted strongholds?

defences. On his return from the campaign of Austerlitz the Emperor drew up several plans for fortifying the heights round Paris. But the fear of disturbing the minds of the inhabitants, and the events which followed one another with incredible rapidity, prevented him from carrying out his design. 'How,' it will be said, 'can you pretend to fortify cities ten or twelve miles in circumference? It would require from eighty to one hundred fronts, 50,000 or 60,000 soldiers as a garrison, and 1000 pieces of artillery; but 60,000 soldiers make an army, and would they not be better employed in the field?' This objection is unfounded. Undoubtedly the defence of a great capital would require 50,000 or 60,000 *men*, but not 50,000 or 60,000 *soldiers*. In periods of misfortune and great calamities, states may be deficient in soldiers, but they can never be without men for their internal defence; 50,000 men, of whom 2000 or 3000 are artillerymen, will be able to defend a capital against 300,000 or 400,000 troops, whereas in the open field, the same 50,000 men would be thrown into inextricable confusion by a charge of 3000 cavalry. Besides, all great capitals may be partially covered by inundations,* because they are situated on rivers, and the ditches can be filled by natural or artificial means.

If Vienna had been fortified in 1805, the battle of Ulm would not have decided the issue of the war. Had Berlin been fortified in 1806, the army, beaten

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* Should it ever be necessary to defend London, the water power of the Thames might, at little expense, be turned to good account.

at Jena, would have rallied there, and been joined by the Russians. Had Madrid been fortified in 1808, the French dared not have marched upon that capital, leaving behind them Salamanca, Valladolid, and the forces of Moore and Romagna. In 1812 had Moscow been fortified, Kutusov would have encamped on its ramparts, and its investment would have been impossible. Constantinople, a much larger city than any of our capitals, owed centuries of existence to its walls; and Paris, had it been strongly fortified in 1814 and 1815, had it been capable only of offering a week's resistance, what an influence might it not have exercised on the events of the world!

Speaking of himself, Napoleon says: The Emperor introduced modifications into Gribeauval's system of artillery; but they were made in his spirit, and he would not have disavowed them. Gribeauval reformed a great deal and simplified much: the artillery is yet too cumbersome, too complicated, it needs to be still further reduced till the very greatest degree of simplicity has been attained.*

A field-battery of artillery should consist of eight pieces, because that number can be divided into half and quarter batteries, its working can be overlooked by a good captain, it gives employment to one company of gunners, and it harmonizes best with an economical distribution of forges, spare carriages, and skilled workmen.

Napoleon discontinued the use of the 4 and 8-

* It is known how fully Napoleon's desires on this subject have been carried out by his nephew, as those regarding the fortification of Paris were by Louis Philippe.

pounders, and substituted the 6-pounder. He found the generals of infantry making indiscriminate use of those pieces without regard to the effect which they wished produced.* His field-batteries of artillery were composed of six guns and two howitzers, the guns being either 6 or 12-pounders, with howitzers of corresponding weight. A train of sixty pieces, founded on his principles, would consist of thirty-six 6-pounders, nine 12-pounders, and sixteen howitzers.

The cartridge of a 12-pounder, he observes, weighs as much as two cartridges for 6-pounders. Is, then, one of the larger pieces better than two of the smaller? In some circumstances it is so; but as a general rule, the two 6-pounders are preferable.

Without in any way dissenting from this conclusion, which, at least when penned, was quite incontestible,† it may be remarked that the line of argument by which it is obtained is not strictly logical. The cartridges of a twelve-pounder battery do indeed

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* The time has passed away when infantry and cavalry generals could almost boast of their utter ignorance regarding artillery and fortification. On the other hand, artillery officers are of necessity conversant with the nature and evolutions of the other arms. It is perhaps on this account that, on the Continent, they have furnished so large a proportion of good and even great commanders.

† General Sir Robert Gardiner, than whom our artillery can boast no more distinguished officer, told me that, during the retrograde movement on Waterloo, his jaded horses could with difficulty drag the guns of his troop through the deep clayey lanes. Those were 6-pounders; had they been 9-pounders he assured me that he could not have kept up with the corps to which he was attached. In his first march on Lisbon, Junot was compelled to leave his artillery behind.

weigh double an equal number of a six-pounder battery; but the number neither of officers, men, nor horses of the heavier battery is increased in the same proportion, nor does it labour under the inconvenience of occupying double space on the line of march or in action. Of the problems to be solved by the general adoption of rifled ordnance, none will be of more practical interest than what weight and calibre of field-gun is best adapted to the general purposes of war. In deciding this question for ourselves, let us remember Napoleon's axiom that 'nothing is positive in war.' Whatever considerations may guide other powers in their selection, many exceptional circumstances combine to urge that at least a portion of our armament should be by comparison heavier and more powerful. Our superiority in mechanical construction,* the greater strength of our men and horses, the excellence of our own roads and communications, and the advantages of water-carriage, which we always enjoy in offensive operations; these circumstances all point in one direction. If our victory at Inkermann has been partly ascribed to the superior fire of two eighteen-pounder guns, what advantages might we not hope to reap by opposing continental armies with a generally more powerful armament?

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* It is scarcely necessary to remark that the larger the piece of ordnance the greater the difficulties of its manufacture. Centuries ago, *small* breech-loading and revolving pieces were constructed: it has taxed all the resources and ingenuity of our own age to apply one of these principles alone to guns of large calibre.

But to return to Napoleon's remarks on that arm, of which he so well knew the value and the use. Gribeauval, he says, possessed a genius for artillery. He allowed four pieces to each battalion of 1000 men. That is a correct proportion. In the imperial train each piece, taking one with another, required for its service thirty horses and thirty-five men. Those who form their ideas of modern warfare on the basis of that of the ancients, will say that it would be better to have several thousands more of disposable men and horses in an army than a large number of guns. They are, however, wrong. In an army it is necessary to have infantry, cavalry, and artillery in just proportions. One branch of the service cannot supply the place of another. We have seen occasions on which the enemy would have gained the battle on those terms. They occupied an admirable position with a battery of fifty or sixty guns. It would have been in vain to have made an attack with 4000 horse or 8000 infantry more; it was absolutely necessary to have a battery of equal force, under the protection of which the columns of attack might advance and deploy.

As a rule, let the infantry be as brave as they may, it is impossible for them, without artillery, to advance with impunity 1000 or 1200 yards against guns well placed and well served. Before proceeding two-thirds of the way the men would be killed, wounded, and dispersed: such is the precision of our artillery.

Good infantry is no doubt the sinews of an army; but if they were obliged to contend for a long time against a very superior artillery, they would

become demoralized and be destroyed. In the early revolutionary campaigns the French always excelled in their artillery, although they had often only two pieces for 1000 men; and I do not know of a single example during that war in which twenty pieces of cannon, well posted and in battery, were ever carried at the point of the bayonet.* A skilful general, with a good infantry, may obtain advantages during part of a campaign, although his artillery may be less powerful; but on the decisive day of a general action, he will be made cruelly sensible of his inferiority in this respect.†

Such, in brief, were the views entertained by Napoleon on two most important branches of war—views which we have seen to a great extent realized in our time, and the justice of which it would be idle to deny. If, owing to their arrangement, I have not at all times been able to preserve the precise letter of his scattered remarks, I have at least never departed from their spirit; and I make the less excuse for these extracts because I believe that the great principles which they reveal can never be sufficiently meditated and discussed.

Since the time of the great Napoleon, perhaps the

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* Does not this impartial testimony of Napoleon throw into higher relief the intrepidity of those heroes who stormed the Russian batteries at the Alma?

† What battle can illustrate these words more vividly than Waterloo? There, while the French infantry was everywhere hurled back, while the French cavalry was swept away and annihilated, we were reduced to a most critical situation and suffered enormous losses owing to the vast superiority of the French artillery.

most original mind which has devoted itself to the pursuit of military science is that of Paixhans, whilst undoubtedly the most active, decided, and laborious in research, is that of the present Emperor of the French. Let us successively examine the fruits of their studies and conceptions.

The name of Paixhans is chiefly known to military men in connexion with the system of horizontal shell firing, which, at least as regards marine batteries, effected a revolution in the science of artillery. The gun which, in the French service, has been appropriately named from its inventor, was only finally adopted after a series of successful experiments carried on at Brest in the years 1823-24. From a cast-iron piece of great power and calibre, shells were projected against shipping at long ranges and low elevations, and so terrible were their destructive effects that, in the opinion of a competent committee, a single 8-inch shell might, under favorable circumstances, suffice to sink a line-of-battle ship. Experiments subsequently made in England, Russia, and Sweden, fully attested the value of the new arm, and have since received a melancholy confirmation by the rapid and utter annihilation of the Turkish fleet in the waters of Sinope.

But the advantages of Paixhans' system were not confined to marine warfare. In sweeping away the earthen parapets and traverses of fortresses, the heads of saps, and every description of temporary work, his shells proved infinitely superior to solid shot, and, in his own opinion and that of capable judges, these same shells, when filled with lead or sand, and propelled at low velocities against masonry or timber, would prove far more formidable by their tearing

and shattering effects than the clean piercing solid shot of small diameter and high velocity.

Although an artillery officer, Paixhans did not restrict himself to the study of his own peculiar arm, which is indeed so connected and interwoven with the other branches of scientific warfare as to render it almost incapable of isolation. He grappled with the whole question of national organization and defence, and has published the fruits of his researches, which are increased in value by the experience of each succeeding year.

The force of nations, he says, is no longer in their barracks. We have seen the volunteers of the Revolution, fresh from the college or the plough, defeat the disciplined armies of Austria, Russia, and Prussia; we have seen the Spanish nation, aided it is true by foreign troops, baffle Napoleon's ablest generals, directed by Napoleon himself; we have seen, in 1813, the students, professors, and citizens of Germany rise up and achieve what neither kings nor their armies nor the snows of Russia could accomplish; we have seen the Americans prevail against England, and the Greek mountaineers against the Turkish troops; and yet can we ask where resides national power? It resides in the hearts of a free population, without the support of which, in future nothing great can be accomplished.

In proportion as nations become more civilised, more rich, and more free, they have fewer paid soldiers, and a larger proportion of reserve militia. Russia has scarcely any force except of the line; Germany has strong militias; England has more militia than regular troops; and, in the United

States nearly the whole military force consists of militia: here we have an evident progression, which, however, is governed to a certain extent by situation and liability to attack.

In accordance with these views, Paixhans proposed to reduce the standing army of France to 100,000 men, supported by the grand reserve of the whole nation, of which the youth was to be regularly instructed in the use of arms. France has not profited by the advice; her industry is paralysed by half a million of paid troops, for which her rulers are ever in search of employment; but we are beginning to value the deliberate opinion of an experienced soldier, 'The force of a nation is no longer in its barracks.'

Before passing to the more technical part of his subject, Paixhans criticises the administration of the French armies in words which I reproduce, because they prove how gradually, and with what persevering efforts, the present high state of efficiency has been attained; and because they vividly paint the results of a system in which the administrators are everything and the administered nothing; in which work is created for the office, not the office for the work.

Seventy-six volumes of administrative details for soldiers! Yes; and every year the collection is swelled by about a thousand pages. As magistrates are necessary to expound the laws, so for this legislation of shakos and pipeclay, a whole swarm of clerks and intendants are required. Then the intendants from the War-office inundate with writings the intendants of the provinces; these again inundate the military bodies; and all this bulk of papers, too enormous to be ever read, costs annually several millions.

So again, in every regiment, behold returns, records, and documents of every size and description; quarters turned into offices; indifferent soldiers promoted because they write a good hand; and commanders disgusted at depending for everything upon some deputy-clerk, and of being constantly treated as presumed culprits under surveillance.

Or turn to Paris, to the central departments: there are vast buildings peopled by writers and encumbered with papers; there are carts bringing in bushels of letters and taking back bushels of replies. Everything has been foreseen, nothing has been forgotten —save, perhaps, this: to give to the clerk a power of universal comprehension; to the secretary a power not of reflecting on, but of reading everything; and to the minister, on his return from the council or the senate, a power of even glancing at the hundredth part of the decisions which he is obliged to sign.

Doubtless centralization is necessary, and especially necessary in war; but must this centralization, from the depths of its offices, see everything, do everything, decide everything down to the minutest details, as though beyond those offices all persons were guilty either of folly or fraudulent collusion?

Thus is denounced the most wearisome of all tyrannies, the tyranny of bureaucrats. The French army has emancipated itself from their yoke; but that such a yoke was ever endured may serve as a warning. There is more than a jest in the saying, that 'An army of stationery will always be a stationary army.'*

* Napoleon said at St. Helena, 'There can be no army until our terrible paper administration has been swept away.'

Like Napoleon, Paixhans confesses himself filled with doubts as to the best method of defending a country by fortifications. 'In our days,' he says, 'Holland, Italy, Prussia, and Spain, bristling with fortresses, have been rapidly conquered; France, with the frontiers of Vauban, has been twice invaded. Turkey has lately experienced the same fate. Is it possible that a fact so general, so striking, should prove nothing?'

Before coming to any definite conclusions, he establishes that the proportion of sieges to battles is continually decreasing. From the 10th to the 18th century, there were fewer battles than sieges. From 1741 to 1783, the number of sieges was two-thirds of the number of battles. During the Revolution and Consulate about one-fourth, and under the Empire only a sixth. This decreasing progression speaks for itself.

From these and other facts, Paixhans concludes that the continental fortresses are at present too numerous. That little can be hoped from the passive resistance of places, but that their garrisons should be actively employed. That small fortresses are only useful to protect a bridge or a defile. That large places are required, capable of containing considerable bodies of troops. That fortresses should not be scattered along a frontier, but erected at convenient distances on the great roads leading from the frontiers to the capital; and lastly, that the capital itself should be fortified.

These views, which have been strengthened by recent experience, are in perfect accordance with the

principles and practice of Napoleon, who, after the battle of Marengo, determined to unite at Alessandria the elements of strength which lay scattered through the fortresses of Turin, Tortona, and Milan; who, in 1815, actually ordered the works round Paris to be commenced, and who takes especial care to inform us that he always preserved fortified depôts, at intervals of five or six marches, along his chief line of communications.

Turning from general principles to their application, Paixhans observes that too much importance has been attributed to the details of fortification. In an age when the range and power of projectiles, the size of armies, their rapidity of movement and facilities of combination, were all comparatively limited, Vauban fortified towns of moderate extent, according to a system which not he, but his too ardent disciples, would blindly impose upon all engineers under all circumstances. Saxe had already remarked that all fortresses, like all beehives, were made alike. In our time we have seen model places speedily reduced or abandoned, while to the names of Burgos, Saragossa, and St. Jean d'Acre, have been added those of Kars, Sebastopol, and Schoumla, in all of which the narrow methodical rules of art had been made to yield to more imperious necessities.

Fortifications are alike necessary to command some narrow defile, anchorage, or neck of land, and to form a vast place of arms, the grand depôt and rallying-point of a nation. And shall these works, so different in their aim and requirements, submit to one uniform and immutable system? In the first case,

forts of small extent, but great resisting power, are demanded, and it is here that iron* walls may play a leading part; in the second, how many are the errors to be avoided, and the conditions to be fulfilled.

Supposing the capital or some important town to be selected as the central point of resistance, it will be necessary to surround it by a chain of fortified works. These works must be constructed so as not to require large permanent garrisons, and yet they must be sufficiently extensive to ward off bombardment, and to render blockade impossible;† they must be capable of affording shelter to an entire army, and they must display a front at once easily opened and easily closed.

According to Paixhans, our present fortifications, attacked by three kinds of fire, are only protected against one. To the direct, the ricochet and the mortar batteries of the assailant, they only oppose a simple parapet and some traverses. Vauban saw

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* The idea of protecting his batteries by iron armour had occurred to Gustavus Adolphus. Darçon desired to cover with iron plates the floating batteries employed against Gibraltar. Paixhans further developed these projects; in fortresses he reduced to their smallest dimensions the spaces to be thus covered; he proposed that the coverings should be moveable, and applied chiefly to protect the fronts of casemates. The success of floating batteries is now considered established, and although when first employed in fortifications, the whole bulk of armour was slightly thrust backwards by the violence of the projectiles directed against it, yet there is every reason to expect that this difficulty will be overcome.

† This system, which has been actually applied to the country surrounding Paris, by preserving the inhabitants from the usual horrors of a siege, may be said to agree with the humane principles, already quoted, of Arnold and Saxe.

the deficiency, and accordingly introduced casemates into some of his latest works. Those casemates had defects. .Cormontaigne came after him, and instead of suppressing their defects, he suppressed the casemates themselves. Then Montalembert proposed to have tier above tier of guns, as in a line-of-battle ship. He reproached the engineers with opposing nothing to the ricochet and shell batteries; they retorted that he exposed his walls to direct fire;* both were in the right, and after their discussions, the art of fortification remained in all its weakness.

For a long time it was thought that the advantage of casemates was neutralized by the impossibility of clearing them of smoke; but experience has proved that this may be accomplished. In fortresses, casemates are necessary for the preservation of artillery, stores, and magazines; they are necessary to the repose and well-being of troops; and every day they become more indispensable as the agents of destruction become more formidable in number, in power, and in facility of transport.

The advantages to be derived from curved, as distinguished from vertical and horizontal fire, attracted the attention of Paixhans,† as they have since done

* As the long exploded idea of Montalembert has been lately reproduced as part of a so-called original system of fortification, these remarks may be of value, pointing out as they do its chief, but not its only defect.

† Carnot also published his views on the subject of curved fires, but they are much more crude than those of Paixhans, to which he subsequently gave his complete adhesion. The Russians fired vertical grape against our trenches before Sebastopol; but the great extent of these works was unfavorable to that description of fire.

that of the German engineers. By means of shot and shell projected at low velocities and considerable elevations, the besiegers' works may be swept away by batteries completely screened from their view, while on the other hand it has been proved, by experiments carried on in England, that by the same means the masonry wall of a fortress may be breached from a distance, without the necessity of previously carrying the outworks.

In accordance with Napoleon, Vauban, and all great engineers, Paixhans places the highest importance on the command of water and the power of inundation. We all know how effectively this power has been wielded in the Low Countries; and it is by controlling it in the defence of large fortresses that steam may become, even more than it has hitherto been, a direct agent of war. Those who wished to substitute steam for gunpowder, neglected the speciality of its force, which is continuous and sustained, rather than instantaneous. They failed, as those would fail who endeavoured to work a locomotive by gunpowder. But that steam will daily play a more important part in warfare is certain. At sea and on land we have beheld troops transported by steam to the very centre of conflict. The steam ram* is highly considered by some: and steam-engines, capable of rapidly discharging on a given point thousands of tons of water, may yet contribute to retard the progress of an offensive army.

* Whatever may be its merits, I am disposed to view the construction of a steam-ram as a retrograde step in maritime warfare: let us hope that it will be at last a good floating battery.

As the peculiar force of steam has been misunderstood by some, so others in seeking for explosive compounds which would, in their opinion, be stronger than gunpowder, have equally been led into error. The assertion may seem paradoxical, but at a time when we demand increased range and power from projectiles, we also demand that gunpowder, the basis of their range and power, should, in many cases, be made less strong.

Those engaged in mining and blasting operations were probably the first to discover that the effect of gunpowder might, in certain cases, be increased by diminishing the rapidity of its combustion; and they accordingly resorted to the device of either damping ordinary powder or adulterating it by an admixture of sand. For such clumsy contrivances, were, however, soon substituted certain alterations in the proportion and mixture of the ingredients which produced the same desired result; and in imitation of these simple miners, some of the ablest practical chemists have lately turned their attention towards restricting the too rapid development of gases by gunpowder.*

In order to reconcile what may at first sight appear

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* A regular course of experiments, tending to elucidate this complicated subject, would be of great interest and equally great practical value. It would perhaps be established that, other circumstances being equal, the rapidity of gunpowder combustion should be inversely as the resistance to be overcome and as the spaces through which the elastic gases continue to exert their influence. But should this theory, as I surmise, be found generally correct, it must still be modified by many considerations: such as the weight and strength of the gun and carriage, the amount of recoil, the bulk and even the shape of the charge. While

contradictory, we must remember that by the elasticity or gradual development of force, missiles have in all ages been propelled;* by the adoption of gunpowder the elasticity of gases was substituted for the elasticity of solids, but the great principles of projectile force remained unchanged. A feeble child may, by means of an elastic bow, propel an arrow to a distance which could never be attained through the agency of the tremendous but non-elastic forces of the steam hammer or hydraulic pressure. The development of projectile force should be not only gradual, but gradually and progressively increasing, and hence we can easily understand why, on the one hand, such terrible agents as fulminating silver or mercury, which almost instantaneously evolve the whole of their gases, have failed as propellents, and why, on the other hand, in order to meet the greater and more protracted resistance occasioned by elongated projectiles and suppressed windage, chemists are industriously seeking for gunpowder of comparatively slow combustion.

The present Emperor of the French, having displayed in private life a special aptitude for military study and research, has, since mounting the throne, displayed no less talent in maturing those studies and reaping their full fruits. As was said of his uncle, he seems gifted with the precious faculty of thinking

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such subjects, and others equally important, are clouded by doubt and error, may we not say that the science of gunnery is yet in its infancy?

* This subject is most ably treated by Dr. Scoffern in his *Projectile Weapons of War.*

more rapidly than other men. Thus while surrounding nations were gravely, and no doubt wisely deliberating, comparing, and discussing an improved artillery, they were rather startled to find the French actually taking into the field a vast array of rifled ordnance. It is true these pieces were neither very novel in design nor very perfect in construction. Yet the Emperor adopted them as the best that came to his hand. They simply gave rather more than double the range and accuracy of the old guns to which they were opposed, and, having established a decided superiority throughout the campaign, they proved themselves irresistible at the crowning victory of Solferino. 'Ask me for anything but time,' said the first Napoleon; and in the race of improvement, the present one is inclined to give little. He teaches that a rapid and adequate supply of a good, serviceable arm may prove as useful as to be slowly or sparingly provided with one of almost ideal perfection.*

Among the earliest of the present Emperor's reforms, was the fulfilment of a wish so often expressed by his uncle, of still further simplifying the material of field artillery. This he effected by substituting for every other calibre and description of piece one uniform brass howitzer gun, which, although labouring under the disadvantage of a high trajectory, yet made excellent practice, and greatly economised time and labour, not only in the service and organization of

* In the course of two or three years the Austrians will doubtless be supplied with cannon far superior to those which shattered their ranks at Magenta and Solferino. But in an army, the prospect of eventual excellence is but a poor compensation for present inefficiency.

artillery, but also in the collection and distribution of stores.

The employment of iron plates as a protection against shot and shell, which had been recommended by Paixhans and others before him, was successfully tested by the Emperor on his floating batteries. That they have been exclusively applied to vessels may perhaps be attributed to the fact that military France firmly believes in a double destiny of constant aggression abroad and security at home; but should this flattering illusion be some day rudely dispelled, we might then behold the iron plates applied to strengthen certain land posts, which, naturally circumscribed in space, it was still necessary to render of extreme resisting power.

Without displaying any decided original genius for mechanical or experimental science, the Emperor has given abundant evidence of what is perhaps more useful—a happy facility of appropriating and applying the experience and suggestions of others. The simplification of artillery recommended by Bonaparte, the iron plates of Paixhans and Darçon, the balloons of the Republic, and the rifled cannon of a whole host of inventors,—to have successfully embodied one of these ideas alone might have been the result of accident; but to have developed and improved upon each and all, to have reduced into practice what might have remained vague floating ideas, this, of itself, will secure for the Emperor Louis Napoleon a high place among those who have contributed to the progress and advancement of military science.

It has been said that the French rifled cannon employed in the Italian war neither aimed at nor at-

tained any elaborate degree of perfection. Their merit was rather of the rough and ready sort. Easily manufactured and supplied with ammunition, served with equal simplicity and safety, and demanding but little instruction or even experience in those who worked them, they were well adapted to withstand a first and rather sudden trial in the open field. Having answered this purpose, it is believed that they will soon be supplanted by others of still greater range and precision; but in the meantime they claim a passing glance as the only representatives of the new arm, of which the practical value has been in actual warfare fully and completely established.

The new French field-piece, then, is a brass muzzle-loading gun, the exterior of which does not differ from those of the ordinary description. The surface of its bore is cut by grooves of great depth and rapid spiral twist, into which fit the corresponding buttons of a cylindro-conoidal projectile, either solid or hollow, but in either case composed of cast-iron. A considerable amount of windage is allowed, with a view to facilitate loading, and to prevent the shot jamming on its passage out of the bore. This great windage must necessarily demand a proportionate increase of charge, and occasion a proportionate decrease of accuracy. Yet at a range exceeding 2000 yards, their fire was most effective at Solferino, and, as a natural result, we learn from the official reports that on every point the Austrian batteries were silenced by the French.*

* This fact, joined to the inertness of a great part of their cavalry, speaks highly to the credit of the Austrian infantry, which from sunrise to sunset bore the brunt of battle at Solferino.

In England, the home of mechanical science, we have been slower to adopt, because we have been more patient to investigate. Sir William Armstrong has produced a piece which he has publicly described,* and which, he stated, had surpassed the most sanguine hopes of himself and those most interested in his success: while Mr. Whitworth speaks confidently—and his confidence is shared by many—of exceeding everything hitherto witnessed in range, precision, lowness of trajectory, and power of penetration. When these two guns, having attained their highest perfection, are finally pitted against one another, each of the great inventors will probably be awarded a share of praise and encouragement which will raise him far above any feeling of jealousy towards his rival; each will probably find that he had something yet to learn; and from a combination of what is most excellent in the system of each we may hope to obtain an arm which, for years to come, will render hopeless any attempt at competition.

But while the rival claims of the polygroove and hexagon bore engross all attention, the early efforts of Mr. Lancaster in the cause of progress, and the undoubted advantage of his elliptical rifling, should not be forgotten; nor must we consider him to have practically failed, because, at Sebastopol, cast iron proved unequal to the strain which he imposed upon it.

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* My reserve on this subject will be easily understood. I must either confine myself to a repetition of Sir William's own published words, or run the risk of unintentionally disclosing what there may be excellent reasons for desiring to keep secret.

If this constitutes failure, few indeed have succeeded. His elliptical bore shares with Mr. Whitworth's the merit of obviating any stripping of the projectile, and of dispensing with all complicated questions regarding the depth and number of grooves; while it stands alone in repelling, by its smooth, unangular surface, the injurious collection and deposit of dirt.

Leaving, however, the advantages of various methods to force their way, as they assuredly will, upon government and the public, let us for a moment consider some of the distinctive features which are equally common to all.

When it was first proposed to adopt a general system of rifled ordnance and elongated projectiles, many and loud were the objections urged. In the first place, ricochet firing would be impossible; then to attempt common, much less Shrapnel* case firing, would be simply absurd; while the success of ordinary shell must be at least problematical.

Sincere, and apparently reasonable, as these misgivings may have been, experience has proved them to be utterly without foundation. So far from the ricochet of elongated projectiles being inferior to that of the old spherical shot, it is equally effective at

* Shrapnel shell, named after their inventor, General Shrapnel, of the Artillery, were introduced into our service early in the present century, and were extensively used in the Peninsula. Shells of little thickness were partly filled with bullets, and it was contrived, by the explosion at a certain point of a bursting charge sufficient to liberate without much scattering the contents, that these continued nearly in the original course of the shell, and pouring in like a concentrated volley of musketry, told with terrible effect on the heads of columns at ranges varying from 600 to 1200 yards.

short ranges, while it is sustained at distances which a few years ago would have been considered fabulous; not only are the elongated shells, whether of the Shrapnel or other principle, infinitely more accurate in their flight, but owing to their fuzes being maintained, as it were, fixed in one position, and burning in an atmosphere of comparatively uniform density, a degree of precision as to the period of bursting has been attained, which could never be derived from the old shells, of which the fuzes wildly rotated round ever-varying axes, and through ever-varying atmospheres.

But while elongated projectiles have falsified many of the forebodings which greeted their first introduction, they have failed to fulfil one condition which was almost universally attributed to them, and even now is, apparently by many, erroneously considered indispensable to their success. This condition is, that their axis of rotation should continue throughout their whole course a tangent to their curve of flight. Now, so long as an elongated projectile continues to revolve round a fixed axis, so long is that axis rigidly retained in a direction nearly parallel to that which it occupied in leaving the piece, and thus it gradually forms a larger and larger angle with the tangent of its own curve of flight. Yet it is precisely owing to this peculiarity, which many would stigmatise as a defect, that the range of rifled projectiles has so often and so unaccountably exceeded that allotted to it by the most careful calculations.

A moment's reflection will explain the seeming mystery. As a bird, with outspread wings, listlessly

poises itself on high by simply opposing its breast to the passing wind; as the paper kite is in like manner supported; so the elongated projectile, having attained the highest point of its trajectory, instead of rushing point downwards towards the earth, is buoyed up and sustained by opposing its under surface to the resistance of the air. It is true that the specific gravity of the shot is incomparably greater than that of either bird or kite. But are not these also incomparably heavier than the atmosphere in which they float? Thus, the same influence which suspends them indefinitely in mid air, retards the fall of the projectile and increases its range.*

The rapid strides that have been made in the construction of ordnance must tend to diminish the value of those improvements, which, during a course of years have gradually been effected in the war rocket. This occasionally terrible but always erratic weapon was introduced into our service by Sir William Congreve early in the present century, and did good service at Boulogne, Copenhagen, and Leipzig. It has since been adopted by other military nations, some of which, as notably the French,† have brought it to a very high degree of perfection. Mr. Hale, by giving to his rocket a rotatory motion, has been enabled to dispense

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* A little volume might, and doubtless will, be written on the remarkable effects due to the resistance not only of the air, but of solids against projectiles of various shape, material, and rates of revolution. Again let it be repeated the science of gunnery is in its infancy.

† From their trenches before Sebastopol, the French fired rockets, which, passing over the town and harbour, first grazed beyond the northern forts.

with the long cumbrous stick. But notwithstanding improvements already carried out, and others of which they are obviously susceptible, war rockets have scarcely risen in esteem. On their side may be urged portability, long range, absence of recoil, disorganizing influence on cavalry, and great devastating power: but the advantages appear to be neutralized by their uncertain flight and the inconvenience of their back fire. Perhaps the secret of their unpopularity may be found in the saying of an officer who had occasion to use them from a boat, 'That if they only frightened the enemy half as much as they had frightened himself and his crew, their moral effect must have been immense.'

Of all improvements recently effected in weapons, that which seems destined to produce the most striking and lasting result on military operations has been applied to the soldier's firelock. So long as the rifle, first adopted in Germany towards the close of the fifteenth century, continued to be charged with a tight-fitting spherical ball, it could never become the general arm of regular infantry. Frederic the Great opposed a body of riflemen to those in the Austrian service, but we seldom hear of their acting with decisive effect, and although throughout a desultory warfare the rifle did good service in the hands of American and Tyrolese marksmen, yet the French, after giving it a fair trial during the early revolutionary campaigns, finally abandoned it altogether.

As the French had been the first to reject the old rifle, on account of its tedious loading process, so they were the first to discover an efficient substitute for it in the 'carabine à tige.' In loading this arm, a conoi-

dal bullet, dropped loosely down the barrel, rests upon a 'tige,' or little stem, projecting from the breech into the bore, around which lies the charge of powder; on this stem, as on an anvil, the bullet is slightly flattened out by a blow from the ramrod, and thus is made to fill the rifle grooves.

It was a great step in advance at once to facilitate the loading of the rifle, and to substitute the conoidal for the spherical bullet. The 'carabine à tige' rendered excellent service in Algeria, and even recently was the arm of a large portion of the French infantry. Yet it was soon eclipsed by the superior advantages of the Minié system, in which the delicate 'tige' is suppressed, while the expansion into the grooves is obtained by the action of the exploding charge on a hollow in the base of the projectile. At first a metal, and subsequently a wooden plug, was used as the agent of this expansion, which latter, having been suppressed in our service as an unnecessary complication, it has recently been found expedient to restore.

While in France all efforts were thus directed towards improving the muzzle-loading rifle, in other countries it was sought to perfect the breech-loading principle, which, having been first adopted during the infancy of fire-arms, had for many years been entirely neglected. The problem received various solutions, but all more or less favorable in different countries. Prussia produced her celebrated needle-gun, while in America, Norway, and Belgium, the breech-loading system was successfully developed, and now that we have seen it applied to every variety of arm, from the pocket-pistol to the monster gun, it is scarcely rash to predict that, in a few years, a muzzle-loading weapon

will be as rare and as antiquated as a spherical bullet.*

If in England we were rather tardy in adopting a system which had already been successfully tested on the continent, we have at least atoned for our delay by giving to this system an immense development, and striving to carry it to its highest perfection. The Enfield rifle, adapted from the Minié, although making excellent practice up to 800 yards, appears likely to succumb before at least one more powerful competitor. Mr. Whitworth has produced an arm, which can be relied upon at a range of 1600 yards, while the superior penetration of its projectile, and lowness of its trajectory, are additional claims on its behalf. When to such a weapon the breech-loading principle has been successfully applied, the most ardent enthusiast for long range, precision, and rapidity of fire, will have nothing further to desire.

A vast increase in the power and efficacy of fire-arms being admitted, it remains for us to consider what will be its actual results in war. Already a large experience, not confined to mere target practice and range reports, offers itself as a base to our conjectures, and thus firmly supported we may, regardless

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* It may be urged that the great expense of generally introducing this new system of fire-arm will cause it to be very slowly adopted. But in the race of military improvement, what State can afford to be left behind? Not ours, assuredly, whose standing army is, and will always continue to be, extremely small. Supposing any one nation to arm her powerful fleets with rifled cannon, would it not be pitiable weakness if, on the score of economy, others were virtually by their inferior armament, to lay themselves at her feet?

of theoretical illusions, with confidence anticipate the future.

In one part of the hard-fought battle of Ilstedt, the Danes were opposed by German skirmishers, armed with the Prussian needle-gun. 'The enemy,' says the Danish General Krogh, 'under cover of a bridge, fired with pointed balls at a distance of 100 and 150 yards. It was in vain that two guns shelled the skirmishers at short ranges; it was in vain that our cavalry charged, and our infantry attempted to advance. In less than an hour we suffered great loss. The general in command was struck down; the chief of his staff was wounded; the commandant of artillery was taken prisoner, after losing two of his pieces, and several other officers were killed and wounded.'

From this condensed extract of an official report, it will be gathered that the terrible effect of the skirmishers' fire was due rather to the increased precision and rapidity of the Prussian breech-loading rifle, than to its extended range; and that the Danes could not bring to bear that which, in all ages, has proved the only effectual means of opposing skirmishers—a corresponding body of skirmishers, equally skilful and equally well armed.

At the siege of Rome, the Chasseurs de Vincennes, armed with their improved rifle, kept up a most deadly fire on the enemy's embrasures: one of these chasseurs alone having successively picked off seven Roman gunners. Here again, highly skilled marksmen, wielding an arm of precision, had to encounter no similar force in the enemy's ranks.

In the Crimea, the English were far better provided

with the new rifle than the French, although the latter were probably more skilled in its use. The Russians fairly attribute their reverses in part to the superior musketry fire of the Allies, which was chiefly thrown in at short ranges. Yet let us not overlook a significant, a startling fact. To prove the utter impotence of Brown Bess, it was alleged that only one of her shots in a hundred took effect. Now the French, who for twelve years had possessed an admirable school of musketry, expended during the Crimean campaign twelve million rounds* of elongated rifle projectiles! I leave to the curious to determine whether the proportion that took effect was nearer one hundredth or one thousandth.

More recently, in India, we have seen the Enfield rifle clear whole batteries of their gunners: but here, as at Rome and at Ilstedt, the trained marksman and his finished weapon were enlisted only on one side of the contest.

We now touch upon those great events so lately witnessed in Northern Italy; but before entering on their study, let us pause to affirm a deduction which springs almost spontaneously from the few examples above quoted. When of two contending armies, one alone is provided with the new rifle of precision, then its skirmishers are all-powerful; neither guns, nor cavalry, nor regular formations of infantry, can stand against them. But let us qualify this admission by

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* Of course a large proportion of this was directed against troops protected by earthworks, but still Alma, Inkermann, the Tchernaya, and numberless minor affairs in the open, must be considered.

the remark, that such a fatal inequality between armies can only exist during a transition period like the present, or where civilisation is opposed to barbarism. In no age has it been the practice to expose regular formations of troops to the harassing attacks of skirmishers. In ancient warfare, the Roman Velites, the Greek Psilites, the light cavalry of Hannibal, protected the masses from the arrows and javelins of the foe. In ancient as in modern warfare, it has fared ill with that army whose skirmishers have proved themselves decidedly inferior. When Hannibal's Numidians, the Parthian or the English bowmen, could strip the enemy, as it were, of his outer covering, they virtually decided the contest. Even the solid Swiss pikemen relied greatly on their arquebusiers; and Napoleon, who knew the old rifle only to despise it, has said, that at times the whole front of battle must become one line of skirmishers. Thus we find a constant effort to meet the enemy's light troops and marksmen with others equally efficient and numerous; and it is because this balance can nowhere be traced in the cases already cited, that I have separated them from the late Italian campaign,* in which such a balance of skill and armament did to a very great extent exist.

* We are gravely told that the experience of this campaign is valueless, because neither of the armies were *universally* armed with the rifle. But we know that even in the Crimea, one half of the twenty-five million bullets expended by the French were elongated rifle projectiles. And since then, every effort has been made to replace the old arm by the new. To demand proof that every soldier armed with the rifle was a *skilled marksman at long ranges*, is simply to demand what no one can ever possibly supply.

At Solferino, a large proportion of either army wielded the rifle of precision. Here, in fair open field, the Jager and the Chasseur joined issue, and contended fiercely from the rising to the setting of the sun: we know with what result; and we also know how far at variance was this result with those speculative theories which had depicted future campaigns as intricate games of hide-and-seek, played out exclusively by the sharpshooters of the rival armies.

Where at Solferino can we trace that utter nullity of the artillery, the cavalry, and the bayonet,* so portentously announced by enthusiasts, who even now desire to close their eyes against the lessons of experience? The Austrian artillery was indeed silenced, but we are distinctly told that it was silenced by the superior fire of the French rifled cannon, just as at Ilstedt the Danish infantry had been smitten by the superior fire of the Prussian needle-gun. But let us listen to the official reports of the French army. 'Thanks,' says General McMahon, 'to these happy charges of cavalry; thanks to the fire of my artillery, I was able to keep the enemy at a distance;' while General Niel thus speaks: 'Outnumbered by the enemy, I was losing ground under their superior fire. I formed a battalion of my reserve into a column of attack; and the bayonet gained for us more than we had lost by the fire;' and again, 'General Trochu, ad-

* It is curious that at the very time when steel weapons were being denounced as useless accessories, the Spanish chasseurs should be represented as throwing down their rifles in order to close, knife in hand, on the Moors.

vancing his brigade by battalions in close column of companies, captured twelve guns.'

Here are well-authenticated facts, taken almost at random from the account of a battle, fought on a fair summer's day, between two armies which have always numbered in their ranks daring and intelligent skirmishers. If it be urged that we possess in the Enfield, as we certainly do in the Whitworth, a rifle superior to those of the French and Austrians, I shall, without discussing the question, simply reply that one and all have, in the musketry schools, proved effective at ranges* which few would venture to recommend in action. But granting, as I freely do, that circumstances may occasionally give to the fire of skilled marksmen a higher influence than it exercised at Magenta and Solferino, can we not also conceive circumstances tending to make that influence considerably less? Have we not heard of night attacks, and battles, like Marengo, protracted into the hours of darkness; of exhausted ammunition and sudden surprises? Will armies for the future claim immunity from the foggy mists of Leuthen and Inkermann, the blinding rain of Albuera, or the drifting snow storms of Hohenlinden?

Yet rifles of precision are destined to work great changes not only in the operations of regular armies, but in the power and independence of nations. We have seen that in the Italian war their advantages were often neutralized by being common to both sides;

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* In 1849 Paixhans stated that the French service rifle gave equal range and greater accuracy than the field artillery of the day.

let us examine how their first apparent action on the other arms may also be neutralized to a great extent. Thus, cavalry charges will be less effective against infantry armed with the rifle, and many will accordingly say the proportion of cavalry must be reduced. But the rifle, by increasing the distance at which troops can mutually support one another, will also increase the spaces over which they will be spread. The extremities of the line will often be more distant from one another than in former times; while the first line will almost invariably be more distant from the second, and the second from the reserve. But the expansion thus given to armies in the field must enhance the value of rapid movement—the special attribute of cavalry. Between these conflicting influences its numbers will probably remain unchanged, while a greater importance may be given to mounted* riflemen and to really light cavalry, as it was understood by Frederic and Saxe.

Again, as regards artillery, notwithstanding its vastly augmented power, its grape and canister will be less effective, while, on ground unfavorable to its action it may be exposed to the telling fire of the enemy's marksmen : hence some might say the proportion of artillery must be reduced. But one of the most certain results of improved fire-arms—a result disputed by none—will be to increase the importance of earthworks and slightly fortified posts, and consequently with them to increase, whether for attack

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* Mounted for the purpose of rapid locomotion, but destined rarely, if ever, to fire from horseback.

or defence, the importance and general use of artillery.

It has been said that, in future, armies will be spread over larger spaces of ground: but greatly to extend the present fronts of battle would weaken the unity of command, and the power of striking rapid blows, while many excellent positions would refuse to lend themselves to such an extension. It is then clearly in depth that this expansion must find space, in depth of space between the skirmishers and the artillery, between the artillery and the first line, and again between this and its supports and reserves; while a gradual development of force may often prevail where its too sudden exposition might have resulted in disaster. Examples are not wanting to confirm what is indeed so self-evident. At Inkermann and Solferino the Russian and Austrian reserves suffered scarcely less than the troops engaged in first line; while the decisive hill of Cavriana was carried by the continuous and successive assaults of thin lines of infantry, constantly fed and recruited from columns which were judiciously kept out of range.

Many and other results beyond those already cited must naturally flow from this improvement in firearms and consequent extension of armies. A minute study of the ground will become more and more indispensable: to throw up an intrenchment may often be useful; but how far more useful the penetrating glance which detects a substitute for this intrenchment in a fold or undulation of the ground, in a copse or even a hedgerow. Descending from the chiefs to the bone and sinew of an army, we find the mass becoming less, the individual more. Henceforth, as

Colonel Jacob has so well observed, no man can be esteemed a good soldier who is not also a skilful and intelligent workman.

If ever the vast power and importance of the rifle are called in question, it will be owing to the exaggerated pretensions of those sincere but scarcely judicious advocates, who persist in confounding target practice with practice in the field, as though smoke and dust, natural obstacles, and the enemy's fire, were utterly without effect; who represent the skirmisher as invariably pitted against a battery or a deep column, instead of, as more frequently happens, against a rival skirmisher, perhaps equally skilful and equally well armed; who, in defiance of all experience, talk of three years as necessary to make a good rifle shot, and otherwise do an infinity of harm to the cause, of which they are the self-constituted champions.

From such, let us turn to the truly practical remarks of a civilian,* who, although a warm advocate of the new arm, cautions us against overrating its actual merits in the field; who suggests that field-guns, like riflemen, may also be placed under cover; that the moral effect of artillery is infinitely greater than that of small arms; that skirmishers, supported by cannon, will always beat skirmishers without that support; that he has seen the best and steadiest riflemen pounded out of a trench by a few well-directed shell; and that, as every improvement in the musket can be, to a great extent, applied to the field gun,†

* Mr. W. H. Russell *on Rifle Clubs and Volunteer Corps.*

† The field-gun is not always content to follow the rifle in the march of improvement. We have a breech-loading cannon in our service, but no breech-loading musket.

the relations between the two arms, and the great principles of military science, will be preserved almost unchanged.

But far beyond the scope of mere tactical details, the rifle must exert an influence no less lasting than beneficial. If, as an eminent authority* has stated, 'the ability of a people, however brave and resolute, to oppose regular troops is inversely as the progress of civilization and the art of war,' then humanity must deplore the recent improvements in fire-arms; but if, as still more eminent authorities and the experience of the past unite to prove, the converse of this proposition is correct, then the rifle of precision will be a most powerful agent in securing for mankind the blessings of liberty and peace.

If we go back to the Middle Ages, when civilization and military art were at their lowest, we behold, on the day after Crecy, 2600 English *soldiers* attacking upwards of 50,000 French *militia*, and actually slaying more than half of that enormous force. Now to this fact, affirmed by all the most credible writers, can a parallel ever occur in these days of improved science and civilization? On the contrary, Paixhans remarks, that in proportion as nations become more civilized and more free, they have fewer regular paid soldiers. Napoleon has said, 'that nation stands upon a rock, whose citizens (as distinguished from regular soldiers) are ready at all times to shoulder the musket.' These expressions were used when neither civilization nor fire-arms were so far advanced as at present. The effect of recent changes may be sum-

* Sir Adolphus Slade, *Maritime States and Military Navies.*

med up in the simple words of Sir William Napier, 'The improved arms have quadrupled the power of volunteers.'

But it is not only in individuals that civilization and progress efface the distinction between the purely professional and the occasional elements of military strength. The material agencies of civil life are daily more valued and employed in war. The railway, the commodious steamer, the electric telegraph, the galvanic battery, and even the balloon—what are these but so many agents, first called into being by civil wants, yet applicable at any moment to purposes of war? This tendency to incorporate the civil with the military resources of the State not only largely exists, but is rapidly increasing; and those who mark its progress will confirm the prophetic words of Paixhans, uttered thirty years ago—'the strength of nations is no longer in their barracks.'

Intimately connected with the vast changes in the power and range of fire-arms, are those questions of fortification which have lately provoked so much discussion with so little result. Abroad, we are told that everything is vagueness and uncertainty; and if we have more decision at home, its value may be estimated from the fact that while people are groping along our distant coasts in search of unprotected spots, any Ostend cabin boy may observe that the Thames—that main artery of our commerce and prosperity, the Thames—that high road to our only arsenal and to our capital, is virtually without defence.*

* In the extremely improbable event of our country being in-

It has been truly said by several distinguished engineers, that the protracted resistance of Sebastopol cannot be taken as a test of regular siege operations. But, failing us in this respect, it affords abundant illustration of two silent revolutions which threaten to overthrow the whole established system of defensive warfare: firstly, it confirms the prediction that the number and importance of what are termed regular fortresses and regular sieges will continually decrease; and, secondly, it establishes the great superiority, suggested by Vauban and boldly asserted by Saxe, of fortified positions over methodically fortified towns.

When all the most eminent authorities unite in stating that the want of masonry revetments materially weakened the defences of Sebastopol, by rendering them at all times, even before a shot had been fired, liable to assault, and consequently by necessitating a vast accumulation of defenders under fire in their neighbourhood, we may consider the question as set at rest. But that these works derived considerable advantage from their simple structure, must be freely admitted. If the Russian lines were open to sudden attack, were not the allied trenches liable at any moment to be inundated, not by such a sortie as stealthily creeps out of a regular fortress, but by the bold advance of strong divisions in line, or, if necessary, of a whole army?

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vaded, is it to be credited that the invader would land his forces on our remote coasts in order to undertake a long and arduous march on London, while the valley of the Thames, with its facilities of transport, its tempting wealth and resources, lies open before him?

Did not these frail, and, as it were, plastic works easily conform to those daring expansions dictated by the genius of Todleben; and thus, if inferior in mere passive resistance, were they not infinitely more formidable as the base of an effectual, because an active and intelligent system of defence? Did they not by their lateral development usurp what had hitherto been the prerogative of the besiegers—a power of concentrating against the enemy's works a powerful fire obtained from a great dispersion of guns? and finally, was it not owing to these special advantages, supported by the unlimited resources of a brave army, for it cannot be called a garrison, that the slow progress of the attack and the obstinate resistance of Sebastopol must be attributed?

Through the darkness which to a great extent shrouds the vexed question of national defence, certain principles nevertheless stand out bold and palpable, though, perhaps, not clearly defined. The days of the old polygon fortresses are past—past never to return. They are losing, and will continue to lose value from a concourse of adverse circumstances, among the most prominent of which are—1st. The increased size of armies, which are thusen abled to mask, blockade, or even contemptuously neglect these restricted fortifications. 2nd. The increased power and destructiveness of artillery, and especially of shell firing, by which, in the words of Paixhans, a fortress may be destroyed without being even besieged.* 3rd.

* In 1830, Paixhans, in order to reduce the citadel of Anvers, constructed a monster mortar, of which each shell weighed 1000 lbs., and contained 100 lbs. of powder, while a charge of only

The increased facilities of transport and communication, by means of which an irresistible mass of men and material may be rapidly and successively brought to bear against isolated strongholds.

But if henceforth every small fortress is of necessity a weak fortress; and if, in order to oppose shell firing, an increased expenditure in casemates and bomb-proofs is indispensable in regular works of fixed dimensions, how are nations to meet this double call on their resources? The answer is clear. They must be content with infinitely fewer defensive works; these works, in order to ward off bombardment, and to afford concentric fire, must be of great circumference; and in order to secure economy and to harmonize with the disposition of large bodies of troops, they must incline towards the provisional and elastic, rather than to the regular and circumscribed.

But it may be said, granting the economy of such a system, for these works might and ought to be constructed by the troops, will it furnish an adequate resisting power? Not if by resistance is meant the dull passive obstructiveness of brick and granite; but in the first place, all experience shows the futility of such resistance:* and, in the second, the recent im-

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13 lbs. sufficed to hurl this moveable mine a distance of 1000 metres. Out of nine shells fired, eight exploded within the citadel, which became untenable, and surrendered. The garrison exclaimed against the brutality of this proceeding; but, as Paixhans remarked, it is not more inhuman to fire one shell of 1000 lbs. than to fire ten of 100 lbs.—to reduce a place in three hours instead of three weeks. Why were not our late attempts to construct large mortars based on the established and successful, in preference to the ideal and impracticable?

* These remarks do not strictly apply to works liable to a

provements in fire-arms tend to raise the value of earth-works at the expense of more solid and imposing structures. Henceforth our estimate of a fortress will not be based upon its material strength and power of isolated resistance, but rather on the degree in which it harmonizes with and developes that general system of national defence, the mainspring of which must ever be the existence of a national army in the field.

But, it may be said, fortification is time, and time is of the highest importance in war. Yes, fortification is time, when it lies across the enemy's path, and perforce arrests his progress; but when scattered fitfully beyond the great focus of national resistance, if it continues an emblem of time, it is of time, as of resources, lavishly and wantonly misspent.*

No doubt, in future warfare, defensive works may play an important part, but they will be such works as can be either wholly constructed or greatly developed

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purely naval attack; for, if the value of masonry has been lately diminished, that of large wooden ships, as opposed to coast defences, has been annihilated. The recent success of shells filled with molten iron, joined to the general adoption of the Paixhans' system, renders more than ever precarious the power of our line-of-battle ships.

* Believing in the utter hopelessness of an attempt to invade our country, I would deprecate the construction of defences intended to meet a land attack. But if any such are to be erected, surely it is not at remote points on our coast, however important in themselves. No one will undertake enormous risks without proposing to himself an enormous prize. The speedy occupation of London was that which the first Napoleon had in perspective; and he founded his hopes of success on that very dissemination of our forces along the coasts, which is now gravely proposed to us as a means of security!

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